Trial Guideline for Protecting Residents from Inhalation Exposure to Petroleum Vapors
TRIAL PERIOD FINDINGS

Prepared For:

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Department of Environmental Protection

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Note that some figures/appendices may not be available in electronic format. Complete paper copies are available in DEP's Regional Offices.

ACKNOWLEDGMENTS

The success of this study is due to the diligent efforts of Maine DEP staff who conducted the residential investigations and provided ideas for improving the *Trial Guideline for Protecting Residents From Inhalation Exposure to Petroleum Vapors.* We are grateful to the residents for their cooperation and patience as DEP tests and develops this guideline.

PURPOSE OF THE TRIAL PERIOD STUDY

This study evaluates the efficacy of the Maine Department of Environmental Protection's (DEP) *Trial Guideline for Protecting Residents from Inhalation Exposure to Petroleum Vapors* (Heiger-Bernays et al., 1997). The Trial Guideline is designed to provide an efficient, effective plan for DEP response to residential complaints about indoor air quality concerns resulting from fuel oil, gasoline and kerosene releases. It was used during the 1997/1998 heating season on a trial basis. This report describes results from this interim period and provides recommendations for revising the Trial Guideline.

STUDY OVERVIEW

Residences included in this trial period study were selected to represent common types of petroleum releases in Maine residences. Thirteen residences and one public library were investigated using the Trial Guideline (Figure 1). Eleven of the residences were impacted by no. 2 fuel oil, and two residences and the library were impacted by kerosene (Table 1). DEP recently found that the majority of residential petroleum releases result from preventable system failures rather than storm damage or human error (ME DEP 1998). Consistent with this finding, ten of the spills in this study resulted from system failures.

Figure 1. Locations of residences in the Trial Period Study. The Southwest Harbor location is a library rather than a residence.

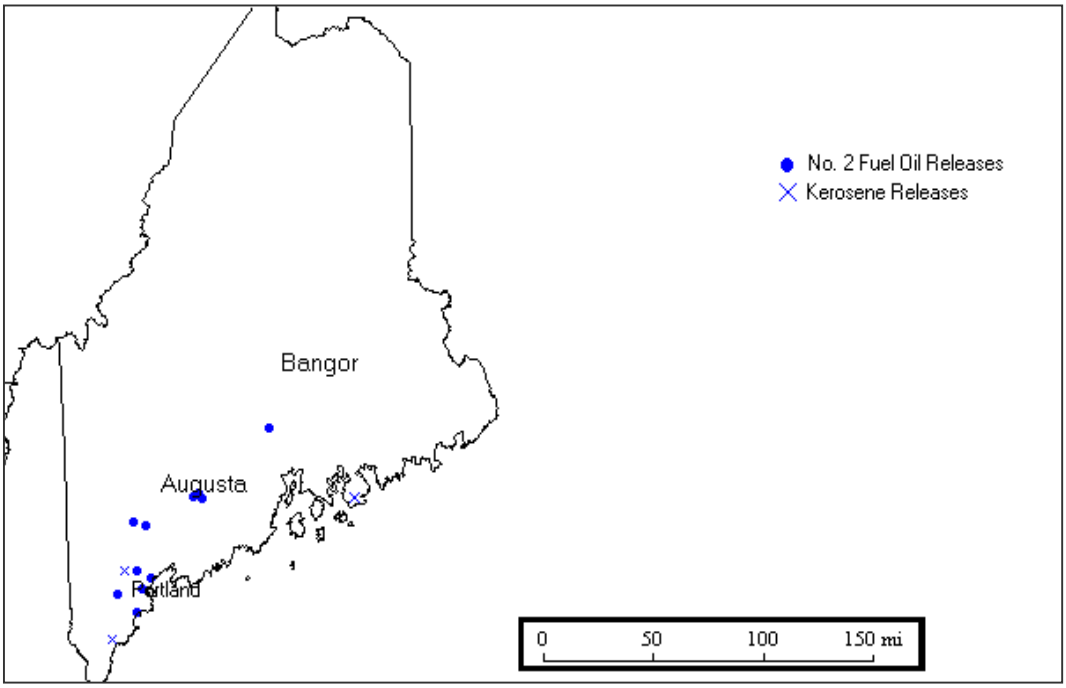


Table 1. General information about residences in the Trial Period Study.

DEP Spill #	Type of Spill	Cause of Spill	Building Type	Attached Garage	Year Built	Level of Traffic on Nearby Roadways	Secondary Heating
A-020-97	no.2 fuel oil	loose fill pipe	single family, 2-story	yes	appr. 1996	quiet (dirt road)	none
A-425-97	no.2 fuel oil	copper line leak	single family, 2-story	yes	1950	moderately busy	none
A-499-97	no.2 fuel oil	dripping filter	single family, 2-story	yes	1940-1949	busy	none
B-055-98	no.2 fuel oil	pinhole from metal fatigue	single family, 2-story	no	1970-1979	quiet (dirt road)	wood stove & fireplace
P-003-98	no.2 fuel oil	abandoned fill line	single family, 2-story duplex	no	early 1900	quiet (paved)	none
P-087-98	no.2 fuel oil	slow leak & overfilled tank	single family, 1-story	yes	1964	quiet (paved)	wood stove (not used)
P-094-98	no.2 fuel oil	copper line leak	single family, 2-story	no	1956-1959	quiet (paved)	wood stove & electric heater (not used)
P-622-97	no.2 fuel oil	rusted seam leak	single family, 1-story	no	1940-1949	quiet (dirt road)	none
P-636-97	no.2 fuel oil	copper line leak	single family, 2-story	yes	before 1961	moderately busy	none
P-639-97	no.2 fuel oil	copper line leak	single family, 1-story	no	after 1986	quiet (paved)	woodstove (rarely used)
P-662-96	no.2 fuel oil	flooding	single family, 2-story	no	before 1939	moderately busy (seasonal)	none
B-061-98	kerosene	pinhole drip	library	no	before 1939	moderately busy	none
P-012-98	kerosene	iced limb sheared line	single family, 2-story	no	1950-1959	heavy	none
P-071-98	kerosene	ice piece sheared filter	single, 1-story	no	1949 (cellar later)	busy	none

Residential Investigation Protocol

The Trial Guideline specifies a detailed protocol for investigating residential complaints about petroleum vapors. It includes step-by-step instruction for conducting indoor air sampling, interpreting sampling results, and making decisions about evacuation and remediation. The Trial Guideline includes sampling forms and a residential questionnaire for documenting the investigation. Appendices A and B of this report contain detailed summaries describing DEP's investigation of each residence during the trial

period. Appendix A includes residences impacted by kerosene releases, and Appendix B includes residences impacted by no. 2 fuel oil releases.

Indoor Air Sampling Analytes

Table 2 lists indicator compounds measured in the indoor air of each residence during the trial period along with their Action Levels. The Trial Guideline describes the selection of these indicator compounds and Action Levels for guiding remediation efforts. The Action Levels are intended to protect sensitive individuals from significant health effects associated with inhalation exposures to compounds found in gasoline, kerosene, and no. 2 fuel oil. Sensitive individuals include pregnant women, young children, elderly people, individuals with compromised immune systems, and individuals in the general population who may be susceptible to the toxic effects of a chemical due to their genetic make-up. The Action Levels are concentrations in air that, when exceeded in the living space, require additional sampling, remedial measures, and/or evacuation of the homes. The Action Levels represent protective levels for acute (1-14 days), subchronic (15 - 364 days), and chronic (365 days or more) exposure durations. Background concentrations of the indicator compounds were considered in developing Action Levels because it is not practical to implement an Action Level below typical indoor air background concentrations.

Remediation

In general, DEP staff conducted remedial activities when spilled product was evident and it was possible to recover the product using standard techniques. These techniques included excavation and/or encapsulation of contaminated soil, placement of sorbent pads, pumping contaminated ground water and soil mixtures ("vactoring"), operation of oil recovery wells, and operation of "radon fans" to vent contaminated basement air out of the house. Basement floor sealers were also used in a number of homes to seal existing cracks in order to prevent migration of petroleum vapors to indoor air. During the trial period, Fantech FR-100™ radon fans were used in many residences where fuel odors were evident in living areas. These fans are about 12 inches in diameter and are usually installed to vent contaminated air from the subslab or sump outdoors before it migrates into the basement. As long as there was any doubt as to whether action levels were met, DEP recommended continued operation of radon fans continuously. Therefore, for some residences, final sampling rounds were conducted with the fan operating. In a limited number of homes, vapor barriers were installed in addition to ventilation systems to further mitigate petroleum vapors.

Table 2. Indoor air target analytes and action levels for petroleum vapors in residences.

Compound Name	Acute Action Levels		Subchronic Action Levels		Chronic Action Levels	
	ppb	µg/m^3	ppb	µg/m^3	ppb	µg/m^3
Benzene	50	160	19	60	3	10
Ethylbenzene	3,300	14,000	230	1,000	230	1,000
n-Hexane	*	*	108	400	57	200
Naphthalene	53	300	20	105	2	10
n-Nonane	*	*	1,000	5,300	100	500
Toluene	4,000	15,000	265	1,000	106	400
Xylenes (m- , p- , and o-)	1,000	4,300	700	3,000	100	400
Methyl-tert butyl ether (MTBE)						

Notes:
* Insufficient data from which to derive an Action Level
µg/m^3 values are rounded to the nearest hundred

RESIDENTIAL INDOOR AIR QUALITY DATABASE

All data and information collected during residential investigations are compiled in a database (Appendix C). This database includes general information about each home and its occupants, circumstances surrounding the spill, and results of indoor air quality sampling. Information for each residence is entered into the database according to the Maine DEP Spill Number. Table 3 lists the types of data and information included in the database.

Table 3. Data and information included in the trial period study database

General Information	Spill Information	Indoor Air Quality Sampling	Indoor and Outdoor Air Quality Data
Town	DEP Spill #	Activities during sampling	Data for target analytes in Table 2 ($\mu g/m^3$ and ppb)
House type	Type of Fuel Spilled	Sampler locations	Reporting limits
Year house was built	Date of Spill or Spill Discovery	DEP Investigator	Laboratory blanks
Attached garage	Investigation Start Date	DEP Sample #	Field blanks
Basement type	Spill location	Lab Sample #	Field duplicates
Yard	Quantity of Fuel Spilled	Sampling date	Surrogate recoveries
Recent renovations	Cause of Spill	Sampler type	Lab turnaround time
Level of traffic near residence	Impacted areas	Analytical method	
Potential outdoor petroleum compound sources	Health effects	General weather conditions	
Possible indoor petroleum compound sources	Odors		
Heating system type			
Secondary heating type			
Gas stove			
Air cleaners/conditioners			
Cigarette smokers			

RESULTS AND DISCUSSION

Residential investigation documentation and indoor air quality data were reviewed to assess DEP's success in protecting the health of Maine residents affected by petroleum spills. Results from implementation of the Trial Guideline are reported in the following sections along with recommendations for improving and finalizing the Guideline.

Appendices A1 and A2 of this report include investigation summaries for each residence. The summaries describe the spill, the sequence of remediation and sampling activities, odors and health effects reported by residents, action level exceedances, and discussion about the potential for future indoor air quality problems. Each summary includes graphs of multiple rounds of indoor air concentration data for each indicator compound. They depict the general indoor air concentration decline at each sampling location within a residence as remediation proceeds.

Quality Assurance/Quality Control

Target analytes were not detected in any laboratory blanks. Twenty (20) pairs of lab duplicates were analyzed, with median relative percent differences (RPDs) ranging from 2 to 4% (Table 4).

Target analytes were not detected in field blanks, except for one field blank where toluene was detected at 0.8 ppb. Five (5) pairs of field duplicate indoor air samples were collected, with median RPDs for target analytes ranging from 1 to 14% (Table 4). The greatest field duplicate RPDs were observed for naphthalene. Unlike other target analytes, naphthalene is a semi-volatile organic compound (SVOC), and inconsistent results might be caused by use of a volatile organic compound (VOC) sampling method.

Average recoveries for surrogates across all air samples and quality control samples were 100 ± 13%, 100 ± 5%, and 97±6.5% for 1,2-dichloroethane-D4, toluene-D8, and bromofluorobenzene, respectively.

Table 4. Summary statistics for lab and field duplicate relative percent differences (%)[1,2,3]

Compound	Arithmetic Mean	Standard Deviation	Median	Minimum	Maximum
Lab Duplicates					
Benzene	4	5	3	0	14
Toluene	3	3	2	0	10
Ethyl Benzene	4	4	3	0	10
Total Xylenes	4	3	3	0	10
MTBE	3	3	3	0	8
***n*-Hexane**	5	4	4	0	12
***n*-Nonane**	4	3	4	0	11
Naphthalene	5	4	4	0	13
Field Duplicates					
Benzene	14	17	9	0	42
Toluene	10	8	11	1	19
Ethyl Benzene	5	4	7	0	10
Total Xylenes	7	6	4	2	16
MTBE	8	11	1	0	22
***n*-Hexane**	13	15	6	0	35
***n*-Nonane**	9	8	8	0	20
Naphthalene	42	44	14	7	103

[1]Undetected compounds were assumed to have a concentration of zero.
[2]Summary statistics are calculated for 5 pairs of field duplicates and 20 pairs of lab duplicates.
[3]Relative Percent Differences were calculated using the equation:

$$\mathrm{RPD} = \frac{|R_1 - R_2|}{(R_1 + R_2)/2} \times 100$$

Summary Statistics for Indoor Air Concentration Data

Separate indoor air summary statistics are calculated for samples collected before or early in the remediation phase and for the final sampling rounds. Living area and basement measurements are combined because these areas could all be used as living space by residents. In calculating summary statistics, undetected compounds are assumed to have a concentration equal to zero. Trace quantities below detection limits are included in the calculation of summary statistics.

Because concentration data are approximately lognormally distributed, geometric means and standard deviations are provided in addition to arithmetic summary statistics. The geometric statistics provide better estimates of central tendency and variability when data are distributed lognormally. The following tables also report the ranges of concentrations detected in indoor air as well as the frequency of detection. All of this information is provided because indoor air concentrations vary over time, regardless of whether a petroleum release has occurred. Therefore, these statistics can be used to show typical indoor air concentrations and concentration variability depending on the fuel type, room, house, and compound of interest. They reveal not only whether action levels were exceeded, but how frequently they were exceeded and under what conditions.

Residents impacted by no. 2 fuel oil. Summary statistics are calculated for data (n=21) collected at eight homes immediately prior to or following initial remediation (Table 5). Median concentrations ranged from 1.8 ppb (naphthalene) to 29 ppb (xylenes). Minimum concentrations ranged from less than detection limits (benzene, MTBE, n-hexane, naphthalene) to 2.7 ppb (toluene). Maximum concentrations ranged from 19 ppb (benzene) to 340 ppb (xylenes).

Summary statistics were calculated for data (n=21) collected at eight homes at the end of the DEP investigation (Table 5). Median concentrations ranged from 0.28 ppb (naphthalene) to 5.5 ppb (toluene). Minimum concentrations ranged from less than detection limits (benzene, ethyl benzene, n-hexane, naphthalene, MTBE) to 0.95 ppb (toluene). Maximum concentrations ranged from 2.6 ppb (naphthalene) to 15 ppb (xylenes).

Two no. 2 fuel oil-impacted residences were sampled only once during the trial period, and summary statistics for these residences are listed under “single round” (Table 5). Median concentrations ranged from 1.2 ppb (benzene) to 16 ppb (toluene). Minimum concentrations ranged from less than detection limits (MTBE) to 9.3 ppb (xylenes). Maximum concentrations ranged from 2.1 ppb (benzene) to 89 ppb (xylenes).

One no. 2 fuel oil-impacted residence (P-636-97) is excluded from the summary statistics because gasoline storage containers and gasoline-powered equipment in an attached garage affected indoor air quality. There were visible cracks in the wall shared by the garage and the kitchen. Indoor air sampling revealed the highest concentrations of indicator compounds in the garage, with the exception of naphthalene, followed by the living area, and then the basement where the fuel oil spill occurred.

Residences impacted by kerosene. Summary statistics were calculated on indoor air data, including both basement and living area samples (n=4), collected at two homes immediately prior to any remediation (Table 6). Median concentrations ranged from 1.7 ppb (MTBE) to 830 ppb (*n*-nonane). Minimum concentrations ranged from less than detection limits (MTBE) to 160 ppb (*n*-nonane). Maximum concentrations ranged from 4.9 ppb (MTBE) to 1500 ppb (*n*-nonane).

Summary statistics are calculated for data (n=5) collected at two homes following remediation. Median concentrations ranged from less than detection limits (*n*-hexane) to 2.7 ppb (toluene). Minimum concentrations ranged from less than detection limits (benzene, ethyl benzene, and *n*-hexane) to 1.3 ppb (toluene). Maximum concentrations ranged from 0.76 ppb (naphthalene) to 13 ppb (*n*-nonane).

Concentrations detected at the library based on a single sample were 0.49 ppb for benzene, 2.6 ppb for toluene, 0.6 ppb for ethyl benzene, 4 ppb for total xylenes, non-detect for MTBE, 0.29 ppb for n-hexane, 3.9 ppb for n-nonane, and 0.63 ppb for naphthalene.

Table 5. Summary statistics for residences impacted by no. 2 fuel oil (ppb)[1,2,3,4,5]

Compound	Arithmetic Mean	Standard Deviation	Geometric Mean	Standard Deviation	Range	Frequency of Detection	Action Levels		
							Acute	Subchronic	Chronic
Benzene							50	19	3
Early Remediation[2]	4.93	5.13	3.19	2.64	0 - 19	20/21			
End Remediation[3]	0.93	0.75	0.85	1.86	0 - 2.8	19/21			
Single Round[4]	1.41	0.62	1.32	1.53	0.92 - 2.1	3/3			
Toluene							4000	265	106
Early Remediation	37.32	46.29	20.00	3.08	2.7 -180	21/21			
End Remediation	5.48	3.69	4.29	2.15	0.95 - 15	21/21			
Single Round	11.97	7.87	9.24	2.73	2.9 - 17	3/3			
Ethyl Benzene							3300	230	230
Early Remediation	16.99	23.58	6.43	5.06	0.2 - 100	21/21			
End Remediation	0.71	0.70	0.67	2.02	0 - 2.7	18/21			
Single Round	7.25	8.47	4.47	3.28	1.8 - 17	3/3			
Total Xylenes							1000	700	100
Early Remediation	78.83	94.08	31.27	5.01	1.2 - 340	21/21			
End Remediation	3.60	3.64	2.51	2.31	0.57 - 15	21/21			
Single Round	36.82	45.22	21.58	3.44	9.3 - 89	3/3			
MTBE							NA	NA	NA
Early Remediation	8.84	10.27	4.71	3.39	0 - 36	19/21			
End Remediation	2.23	2.43	1.24	3.13	0.25 - 9	21/21			
Single Round	2.98	2.64	2.70	2.38	0 - 5	2/3			
Hexane							NA	108	57
Early Remediation	11.73	14.10	6.07	3.51	0 - 57	19/21			
End Remediation	1.55	2.26	1.01	2.47	0 - 9	19/21			
Single Round	1.66	1.03	1.34	2.44	0.48 - 2.4	3/3			
n-Nonane							NA	1000	100
Early Remediation	60.26	84.77	17.58	7.43	0.41 - 290	21/21			
End Remediation	1.68	2.58	0.87	2.87	0.25 - 9.6	21/21			
Single Round	4.05	5.16	2.22	3.74	0.85 - 10	3/3			
Naphthalene							53	20	2
Early Remediation	11.40	36.65	2.03	5.16	0 - 170	19/21			
End Remediation	0.50	0.68	0.66	2.05	0 - 2.6	14/21			
Single Round	2.45	2.14	1.65	3.37	0.44 - 4.7	3/3			

Notes:
1. Undetected compounds were assumed to have a concentration of zero.
2. Early remediation-indoor air samples (n=21) collected at 8 homes prior to or following initial remediation.
3. End remediation-indoor air samples (n=21) collected at 8 homes following remediation.
4. Single round-indoor air samples (n=3) collected at 2 homes where only one round of sampling took place after remediation.
5. DEP Spill # P-636-97 is excluded from this table because indoor air in this residence was affected by gasoline store in an attached garage.
6. NA = not available

Table 6. Summary statistics for residences impacted by kerosene (ppb)[1,2,3,4]

Compound	Arithmetic Mean	Standard Deviation	Geometric Mean	Standard Deviation	Range	Frequency of Detection	Action Levels		
							Acute	Subchronic	Chronic
Benzene							50	19	3
Early Remediation[2]	19.38	17.43	13.77	2.66	5.2 – 43	4/4			
End Remediation[3]	0.37	0.51	0.97	1.06	0 – 1	2/5			
Single Round[4]	0.49					1/1			
Toluene							4000	265	106
Early Remediation	51.00	13.54	49.62	1.31	35 – 68	4/4			
End Remediation	3.42	2.31	2.92	1.86	1.3 – 7.4	5/5			
Single Round	2.60					1/1			
Ethyl Benzene							3300	230	230
Early Remediation	89.25	76.35	58.26	3.23	15 – 160	4/4			
End Remediation	0.57	0.66	0.87	1.75	0 – 1.5	3/5			
Single Round	0.60					1/1			
Total Xylenes							1000	700	100
Early Remediation	501.75	435.06	322.90	3.30	81 – 930	4/4			
End Remediation	3.07	2.92	1.98	3.00	0.48 – 7.4	5/5			
Single Round	4.00					1/1			
MTBE							NA	NA	NA
Early Remediation	2.08	2.47	2.02	2.28	0 – 4.9	2/4			
End Remediation	0.91	0.06	0.91	1.07	0.85 – 1	5/5			
Single Round			0.00			0/1			
Hexane							NA	108	57
Early Remediation	22.50	12.26	20.38	1.64	14 – 40	4/4			
End Remediation	0.79	1.11	1.31	1.47	0 – 2.3	2/5			
Single Round	0.29					1/1			
n-Nonane							NA	1000	100
Early Remediation	827.50	670.59	574.85	2.93	160 – 1500	4/4			
End Remediation	4.66	5.70	2.00	4.56	0.53 – 13	5/5			
Single Round	3.90					1/1			
Naphthalene							53	20	2
Early Remediation	30.35	29.76	15.46	4.83	2.1 – 65	4/4			
End Remediation	0.60	0.13	0.59	1.24	0.46 – 0.76	5/5			
Single Round	0.63					1/1			

Notes:
1. Undetected compounds were assumed to have a concentration of zero.
2. Early remediation-indoor air samples (n=4) collected at 2 homes immediately prior to initial remediation.
3. End remediation-indoor air samples (n-5) collected at 2 homes following remediation.
4. Single round-results from a single round of sampling at a Public Library after remediation.
5. NA = not available.

Frequency of Indicator Compound Detection

All eight indicator compounds were detected at high frequencies in both no. 2 fuel oil homes and kerosene homes during the trial period. In the eight no. 2 fuel oil homes sampled early in the investigation, toluene, ethyl benzene, total xylenes, and n-nonane were detected at a frequency of 100%, benzene was detected at a frequency of 95%, and n-hexane, naphthalene, and MTBE were detected at a frequency of 90%. Following remediation in these homes, the frequency of detection was 100% for toluene, total xylenes, MTBE, and *n*-nonane, 90% for benzene and *n*-hexane, 86% for ethyl benzene, and 67% for naphthalene. In the two no. 2 fuel oil homes sampled only once, the frequency of detection ranged from 67% for MTBE to 100% for all other indicator compounds. In the no. 2 fuel oil home containing secondary petroleum sources in the garage (P-636-97), all indicator compounds were detected at a frequency of 100% in the early and final sampling rounds.

In the two kerosene homes sampled immediately prior to remediation, the frequency of detection ranged from 50% for MTBE to 100% for all other indicator compounds. Following remediation in these homes, the frequency of detection was 100% for toluene, total xylenes, MTBE, *n*-nonane, and naphthalene, 60% for ethyl benzene, and 40% for benzene and *n*-hexane. In one sample collected at a public library where kerosene was spilled, MTBE was the only compound not detected.

Reductions in Indoor Air Concentrations after Completion of DEP Investigation

Percent reduction in residences impacted by no. 2 fuel oil. Reductions in indoor air concentrations are calculated to document improvement of indoor air quality following DEP remediation efforts (Table 7). Percent reductions are calculated separately for the basement/crawl space and living area, comparing pre-remediation and final sampling round data. Median percent reductions for the basement/crawl space ranged from 29% for MTBE to 97% for *n*-nonane. Median percent reductions for the living area ranged from 79% for toluene to 100% for naphthalene. Negative minimum percent reductions mean that concentrations increased during the DEP investigation for some homes. With some exceptions, these increases likely reflect natural variation in indoor background concentrations rather than any influence of the spill.

Percent reduction in residences impacted by kerosene. As with residents impacted by no. 2 fuel oil, kerosene-impacted residents showed substantial improvement in indoor air quality following DEP's remediation efforts (Table 8). Percent reductions for the basement/crawl space ranged from 85% for MTBE to 100% for ethylbenzene, total xylenes, *n*-nonane, and naphthalene. Percent reductions for the living area ranged from -100% for MTBE to 100% for naphthalene. The negative value means MTBE concentration increased in one residence. However, MTBE concentrations were generally low and probably reflect variation in background concentrations rather than any influence of the spill, especially because kerosene should not contain MTBE.

Influence of Outdoor Air on Indoor Air Quality

Summary statistics are presented in Table 9 for fifteen (15) outdoor air samples. These samples were collected at nine (9) residences to check the importance of busy roadways and other outdoor petroleum sources on indoor air quality. For all residences and all compounds, indoor air concentrations exceed outdoor air concentrations before, during, and after remediation with the exception of MTBE at one residence (DEP Spill No. P-003-98). At this residence, concentrations of all compounds are low, with a MTBE concentration of 3.6 ppb in outdoor air and 3 ppb in indoor air.

Table 10 lists ratios for all indoor air and outdoor air samples collected simultaneously during the last round of sampling. Outdoor air samples were not collected during all indoor air sampling rounds. These ratios are highest prior to and during remediation. Even after remediation, indoor concentrations remain higher than outdoor concentrations. From these data, it does not appear that outdoor air contributes substantially to indoor air concentrations.

Table 7. Reductions in indoor air concentrations for residences impacted by no. 2 fuel oil (%) [1,2,3]

Compound	Arithmetic Mean	Standard Deviation	Median	Minimum	Maximum
Benzene					
Basement	51	59	68	-96	98
Living Area	57	88	94	-175	100
Toluene					
Basement	51	65	62	-108	99
Living Area	50	69	79	-107	96
Ethyl Benzene					
Basement	60	77	90	-140	100
Living Area	74	63	97	-104	100
Total Xylenes					
Basement	62	67	89	-109	99
Living Area	74	57	94	-87	99
MTBE					
Basement	-1	127	29	-275	98
Living Area	54	54	88	-24	96
Hexane					
Basement	53	91	82	-170	100
Living Area	67	59	88	-84	99
n-Nonane					
Basement	71	48	97	-48	100
Living Area	80	33	97	7	100
Naphthalene					
Basement	75	22	79	44	100
Living Area	86	20	100	56	100

Notes:

1. Undetected compounds were assumed to have a concentration of zero.
2. Percent reduction data available for 8 homes (3 homes excluded because of fuel type, 1 excluded because of secondary fuel source and 2 homes excluded because only one sampling round was collected).
3. Percent reduction calculated as follows:

$$\frac{\text{average early remediation-average end remediation}}{\text{average early remediation}} \times 100$$

Table 8. Reductions in indoor air concentrations for residences impacted by kerosene (%) [1]

Compound	P-012-98	P-071-98
Benzene		
Basement/Crawlspace	95	100
Living Area	95	100
Toluene		
Basement/Crawlspace	95	97
Living Area	79	95
Ethyl Benzene		
Basement/Crawlspace	100	100
Living Area	93	100
Total Xylenes		
Basement/Crawlspace	100	100
Living Area	94	100
MTBE		
Basement/Crawlspace	85	-100
Living Area	75	-100
Hexane		
Basement/Crawlspace	91	100
Living Area	93	100
n-Nonane		
Basement/Crawlspace	100	100
Living Area	95	100
Naphthalene		
Basement/Crawlspace	100	99
Living Area	79	99

Notes:

1. Undetected compounds were assumed to have a concentration of zero.
2. Percent reduction calculated as follows:

$$\frac{\text{average early remediation} - \text{average end remediation}}{\text{average early remediation}} \times 100$$

Table 9. Summary statistics for outdoor air concentration data (ppb)[1,2]

Compound	Arithmetic Mean	Standard Deviation	Geometric Mean	Standard Deviation	Median	Minimum	Maximum
Benzene	0.58	0.57	0.56	2.04	0.37	0.00	2.20
Toluene	2.63	2.76	1.70	2.82	2.20	0.00	10.50
Ethyl Benzene	0.20	0.33	0.60	2.13	0.00	0.00	1.20
Total Xylenes	1.21	1.66	0.73	2.84	0.45	0.00	6.25
MTBE	1.73	3.54	0.90	3.23	0.56	0.00	14.00
***n*-Hexane**	0.92	1.98	0.71	2.48	0.40	0.00	7.95
***n*-Nonane**	0.16	0.41	0.66	2.27	0.00	0.00	1.60
Naphthalene	0.01	0.04	0.88	1.65	0.00	0.00	0.15

[1]Summary statistics are based on 15 outdoor air samples.

[2]Undetected compounds were assumed to have a concentration of zero.

Table 10. Indoor air to outdoor air concentration ratios. Ratios are calculated for samples collected simultaneously during the last sampling round.

DEP Spill No.	P-662-96	P-622-97	A-499-97	A-020-97
Fuel Type	Fuel oil	Fuel oil	Fuel oil	Fuel oil
benzene	2	11	8	8
toluene	6	17	28	3
ethylbenzene	3	10	13	150
xylenes	6	18	25	240
MTBE	5	2	26	24
n-hexane	4	2	10	17
n-nonane	3	29	3	100
naphthalene	0	20	3	49

[1]non-detected values were set equal to 1/2 the detection limit

Comparison of Indoor Air Concentrations to DEP Action Levels

Table 11 summarizes the number of times action levels were exceeded in residences. Chronic action levels were exceeded frequently at the beginning of DEP investigations, but only rarely at the end of investigations. Subchronic and acute action levels were rarely exceeded. Eight rounds of sampling were conducted for kerosene-impacted residences while 22 sampling rounds were conducted in no. 2 fuel oil-impacted residences. Despite this difference, a similar or greater number of subchronic and acute action level exceedances were detected in kerosene-impacted residences. This result suggests that the potential health risk to residents may be greater in these homes than in no.2 fuel oil-impacted homes prior to and perhaps during remediation. This result might reflect the fact that kerosene is a more volatile mixture of hydrocarbons than no. 2 fuel oil.

Table 11. Number of times action levels were exceeded. If the compound concentration exceeded an acute action level, then it also exceeded the subchronic and chronic action levels. However, the table indicates only the highest action level exceeded by a single concentration measurement.

	Action Level	benzene		toluene		ethyl-benzene		total xylenes		MTBE[3]		n-hexane		n-nonane		naphthalene	
		B[1]	L[2]	B	L	B	L	B	L	B	L	B	L	B	L	B	L
No. 2 Fuel Oil	acute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
	subchronic	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(out of 22 sampling rounds)	chronic	6	3	1	1	-	-	3	4	-	-	1	-	2	1	6	5
Kerosene	acute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
	subchronic	-	-	-	-	-	-	1	1	-	-	-	-	1	1	-	1
(out of 8 sampling rounds)	chronic	3	3	-	-	-	-	1	-	-	-	-	-	2	1	1	1

Notes:
1. B = basement; L = living area
2. "-" indicates no exceedances.
3. MTBE concentrations were compared to the US EPA Reference Concentration (RfC) for MTBE because no action levels were developed for this compound.

Some action levels were never exceeded

Action levels for ethyl benzene and the reference concentration (RfC) for MTBE were never exceeded during the trial period. The maximum concentration of ethyl benzene (160 ppb) was detected in a home impacted by a kerosene spill, and the chronic action level is 230 ppb. Ethylbenzene and MTBE should remain on the indicator compound list because they may be present at higher concentrations in residences impacted by gasoline spills.

Acute action level exceedances

Acute action levels were exceeded in two residences included in the trial study. The acute action level for naphthalene was exceeded in a home impacted by a kerosene spill (P-071-98). Strong fuel odors were evident and residents evacuated the house during remedial activities. The acute action level for naphthalene was also exceeded in a home impacted by a no. 2 fuel oil spill (P-662-96) where the basement flooded following torrential rains. However, the sampling period occurred prior to the trial study and a different laboratory performed the analysis. For this sampling period, naphthalene was reported as a tentatively identified compound (TIC) at 170 ppb with 87% match quality.

Subchronic action level exceedances

Subchronic action levels were exceeded in both no. 2 fuel oil residences and kerosene homes; however, with a greater frequency in kerosene impacted homes. Subchronic action levels for total xylenes, *n*-nonane, and naphthalene were exceeded in kerosene residences. In no. 2 fuel oil residences, the benzene subchronic action level was exceeded once. However, this exceedance is explained by gasoline stored in an attached garage of the residence (P-636-97).

Were chronic action levels attained by the end of DEP investigations?

In residences with multiple rounds of indoor air quality sampling, concentrations decline with each round, except for one residence. In this residence, impacted by no. 2 fuel oil (A-499-97), concentrations for all compounds increased between the first and second sampling rounds. Although action levels were never exceeded at this residence, remedial approaches conducted prior to sampling, including using sorbent pads, pumping from a sub-slab monitoring well, and installing a radon fan, did not result in reducing contaminant concentrations in indoor air. The pattern of contamination suggests that there is an indoor source of petroleum compounds other than the spill, with the highest concentrations found on the first floor rather than in the basement near the spill.

Naphthalene

All chronic action levels were attained by the end of DEP investigations, except for naphthalene. At the end of the trial period, four no. 2 fuel oil-impacted had naphthalene concentrations in the basement in excess of the 2 ppb chronic action level (i.e., A-020-97 (4.7 ppb), B-055-98 (2.2 ppb), P-425-97 (2.6 ppb), P-636-97 (2.9 ppb)). Residents in one home smoked cigars. Another home contained a wood stove. Otherwise, there were no known sources of naphthalene in these residences with the exception of the spilled product.

The chronic action level is close to published “background” concentrations of 0.1 to 0.8 ppb measured in nine Columbus, Ohio homes (Chuang, 1991). However, naphthalene concentrations in these four homes do not fall within this background range, so it is not clear whether they can be attributed to a source other

than the spill. Additional air samples will be collected from these homes to see if the levels decline below the chronic action level.

Recently, the US EPA re-evaluated the non-cancer toxicity of naphthalene and established an RfC of 3 $\mu g/m^3$, 0.5 ppb (US EPA 1998). At the end of the trial period, ten of the fourteen residences had indoor air concentrations of naphthalene greater than 0.5 ppb. A study of background concentrations of naphthalene would be helpful in determining whether indoor air concentrations below the US EPA RfC or the chronic action level for naphthalene are attainable.

Benzene

The benzene chronic action level is low, and there was some concern at the beginning of the trial period that this level might not be attainable. The action level is the median background concentration taken from the published literature. A chronic action level based purely on health protection would be orders of magnitude lower than the action level of 3 ppb. Other than the residence impacted by gasoline storage in an attached garage, benzene concentrations did not exceed chronic action levels in any residences. In fact, an indoor air quality background study specific to Maine residences might support an even lower chronic action level.

Use of Radon Fans

In many of residences, radon fans continued to operate at the close of the trial study. Attainment of chronic action levels in these residences may depend on the continued operation of these fans. In addition, in residences where sub-slab contamination remained after remedial efforts, it is possible for future flooding events or disturbance of sub-slabs to re-introduce contamination into homes.

Compounds Driving Evacuation

Residents evacuated the two homes included in the trial study impacted by kerosene spills. In both of these homes, mild to strong kerosene odors were detected in the living areas and action levels for benzene, total xylenes, n-nonane, and naphthalene were exceeded. In one home (P-071-98), the acute action level for naphthalene was exceeded, the subchronic action levels for n-nonane and total xylenes were exceeded, and the chronic action level for benzene was exceeded. In the other home (P-012-98), the subchronic action level for benzene was exceeded, and the chronic action levels for total xylenes, n-nonane, and naphthalene were exceeded.

Sensitive residents evacuated one home impacted by a no. 2 fuel oil spill (P-636-97). Fuel oil odors were evident within the home and exceeded action levels included the subchronic level for benzene and the chronic levels for toluene, total xylenes, n-hexane, and naphthalene. However, because secondary sources of petroleum were found in the attached garage of this home, levels of indoor air contaminants associated with the no. 2 fuel oil spill cannot be determined.

Odors and Action Levels

Both kerosene and no. 2 fuel oil odors were detected when all acute and subchronic action levels were attained. For homes impacted by kerosene spills, including a public library (B-061-98), results ranged from detecting no odor to detecting a slight odor when all chronic action levels were attained. For homes impacted by no. 2 fuel oil, results ranged from detecting no odor to detecting fuel oil odors in the basement, where the spill occurred, when all chronic action levels were attained.

Health Effects

Health effects were reported as a result of kerosene spills in two homes included in the trial study and the public library. The following health effects were reported due to kerosene spills: nausea, dizziness, headaches, runny nose, throat irritation, drowsiness, difficulty concentrating, and shortness of breath. Residents in eight of the no. 2 fuel oil impacted homes reported health effects, including headaches, eye and throat irritation, runny nose, coughing, nausea, stomach cramps, dizziness, and lethargy. Residents of the kerosene impacted homes evacuated prior to remediation. Acute, subchronic, and chronic action levels were exceeded in these homes. In one of the homes impacted by no. 2 fuel oil (P-639-97), DEP staff sampling one week after the spill complained of eye and throat irritation after working for thirty minutes in the home. Fuel oil odors also permeated clothing within this period. Subchronic and chronic action levels were exceeded in this home. Sensitive residents evacuated the no. 2 fuel oil impacted home (P-636-97) containing secondary petroleum sources in the garage. Action levels for benzene were exceeded in all five sampling rounds from November 1997 to May 1998. All of the reported health effects are consistent with exposure to high levels of volatile organic compounds.

Comparison of Indoor Air Concentrations from the Final Sampling Round to Published Background Concentrations

In Figures 2a-2h, indoor air concentrations measured at different phases of residential investigations for no. 2 fuel oil impacted residences are compared to published background concentrations. Figures 3a-3h depict the same comparison for kerosene-impacted homes. These figures show an overall decline in indoor air concentrations from the “early remediation” phase to the “end remediation” phase, or the final sampling round. The “end remediation” phase concentrations are generally within the range of published background concentrations.

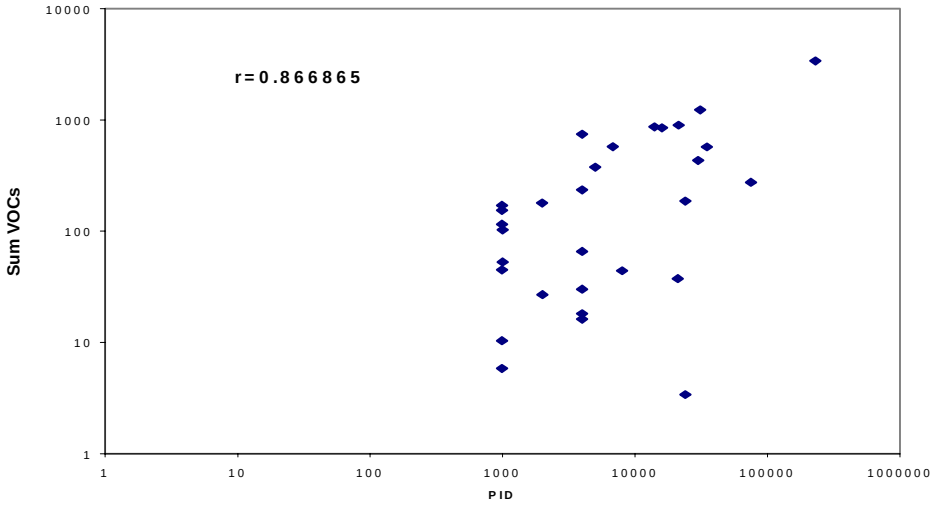
The occurrence of MTBE in residences was somewhat surprising because this compound is used in gasoline rather than no. 2 fuel oil or kerosene. Hadwen et al. (1997) measured MTBE in offices that are generally similar to concentrations measured during the Trial Period. The source of the MTBE might be gasoline-powered vehicles or equipment used inside residences or attached garages, vehicle emissions from nearby roads, or residual contamination in fuel distribution trucks. A recent survey of state LUST programs revealed that MTBE occurs at sites that are not contaminated with gasoline, possibly because non-gasoline fuels pick up residual MTBE in distribution systems, barges, and trucks that also carry gasoline (Hitzig et al. 1998). Therefore, it is possible that the MTBE originates from home heating oil or kerosene transported or stored in pipelines or vehicles that also carry gasoline.

Total Petroleum Hydrocarbons (TPH) were measured in some residences. No background “TPH” measurements are available in the literature for comparison. However, the Massachusetts Department of Environmental Protection (MA DEP) measured background volatile petroleum fractions in several residences and reported these concentrations (MA DEP, 1997). Detection limits for TPH in the Trial Period study exceed these petroleum fraction background concentrations, so no comparisons can be made. Consequently, any risk associated with petroleum contamination of indoor air above and beyond the eight indicator compounds cannot be estimated.

Correlation between PID and TO-14 Data

PID readings were correlated with summed concentrations of the eight indicator compounds (Figure 4). However, PID readings were generally 10 to 100 times higher than the summed concentrations. This result is not surprising given that the eight compounds represent the most toxic constituents of no. 2 fuel oil, gasoline, and kerosene rather than the entire mass of petroleum vapor in indoor air. These measurements indicate the importance of quantifying petroleum fraction concentrations in indoor air so that any risk associated with these fractions can be accounted for in DEP's final Guideline for protecting residents from petroleum vapors.

Figure 4. PID readings vs Sum of VOC concentrations in indoor air (ppb)



Note: There were no detection limits for PID data however, PID data which ranged from 0 to 1 ppm were assumed to be 1.

CONCLUSIONS FROM TRIAL PERIOD INVESTIGATION

Indoor air quality data collected during the trial period support several principal conclusions:

1. Outdoor air contamination did not make a substantial contribution to indoor air concentrations.
2. Subchronic and acute action levels were rarely exceeded and only during "early remediation" primarily in the basement.
3. Exposure to kerosene vapors may pose a greater health risk than exposure to no. 2 fuel oil vapors.
4. Naphthalene chronic action level exceedances in four residences might be spill-related or they might be explained by background naphthalene concentrations in residences heated by fuel oil. Otherwise,

the "end remediation" phase concentrations were generally in the range of published background concentrations.

5. It is not clear that PID measurements can be used to decide when evacuation is appropriate. Acute action levels were exceeded with a wide range of corresponding PID readings from 4 ppm (P-662-96) to 230 ppm (P-071-98). The only two acute action level exceedances occurred in homes with flooded basements, pockets of NAPL floating on the floodwater, and forced hot air systems drawing air from the basements. These conditions might be better indicators of the need to evacuate than PID readings.

RECOMMENDATIONS FOR MODIFYING THE GUIDELINE

During the Trial Period, DEP demonstrated the utility of the Guideline for protecting Maine residents from petroleum vapors. Participating residences were confined to southeastern Maine. Nevertheless, the fuel type and circumstances causing each spill are typical of those reported to DEP over the years. However, no residences impacted by gasoline spills were investigated.

DEP's experience during the Trial Period and analysis of indoor air quality data collected during investigations prompt several recommendations for improving the Trial Guideline. These improvements can increase efficiency and efficacy of DEP investigations.

Residential Indoor Air Quality

Sampling and analytical methods

One laboratory (Air Toxics, Inc.) advised DEP that EPA Method TO-14 does not measure naphthalene accurately and recommended a new sorbent-based EPA method, TO-17. Another laboratory (Performance Analytical, Inc.) did not share this concern. This question is important not just for accurate analysis of naphthalene, but also for volatile petroleum fractions if DEP decides to analyze for them. MA DEP is developing a method for analyzing petroleum fractions in indoor air, and this method includes use of the TO-14 sampling methodology. To resolve this issue, DEP could first request whatever data Performance Analytical is relying on to conclude that naphthalene is accurately measured using TO-14. DEP also could conduct side-by-side sampling to compare the two methods. Before undertaking such a study, DEP should consult with MA DEP regarding its method development efforts.

Indoor air analytes

Total Petroleum Hydrocarbon (TPH) analysis is not very useful for assessing risk to residents. Detection limits during the Trial Period exceed concentrations that might be of concern, depending on the composition of the TPH. If low detection limits are achieved, DEP could use petroleum composition data to partition the TPH into petroleum fractions as defined by MA DEP or the TPHCWG. Using these data, DEP could evaluate the importance of fractions to estimates of human health risk in no. 2 fuel oil and kerosene-impacted residences. To be confident that the health of residents is being protected, DEP should consider analyzing petroleum fractions in air.

Baseline indoor air quality sampling

The Trial Guideline recommends instantaneous indoor air sampling at the beginning of DEP investigations to help decide whether evacuation is appropriate. Portable gas chromatography (GC) and Tedlar bags are options. However, DEP does not have portable GCs and naphthalene adheres to Tedlar bags. To avoid these problems, DEP could base evacuation decisions only on any health effects residents might be experiencing, safety, and/or very high PID readings.

Instead of the instantaneous baseline sample, DEP could collect a 24-hour baseline sample during the first visit. Sample collection should begin as DEP leaves the residence, after initial remediation work. This sample would indicate air quality conditions toward the beginning of the investigation and the identity of compounds or fractions that are most prevalent. Results could be compared to results from post-remediation sampling to measure success of these efforts.

Using Sampling Results to Make Decisions About the Need For Evacuation

DEP responses must be quick because spilled product can dissipate, contaminating larger amounts of soil and building materials. Such movement of spilled material makes remediation more difficult. DEP response might be particularly urgent where the health of residents is threatened by very high air concentrations. Baseline sampling will provide some indication of this risk, although belatedly. High PID readings might also indicate risk to health and perhaps the need for evacuation. PID readings reached 200 ppm in one residence evacuated during the Trial Period. While PID readings cannot be used to conclude that indoor air quality is acceptable, they might be useful for deciding whether evacuation is appropriate when results from sampling methods appropriate for risk assessment are not available.

Improved Documentation of DEP Investigations

DEP's experience during the Trial Period revealed several ways that documentation of investigations could be improved:

Revise residential questionnaire

- Separate questions asked once during the first visit from questions asked during each visit.
- The health effects section should be clarified because residents apparently were reporting health effects whether or not they believed they were related to the spill.
- Maintain a timeline for each home that describes when and how sampling, remediation, and other investigation activities were performed.
- Collect photos including sampler locations so new investigator can sample consistently.
- Sketch floor plan.

Sampling Forms

- Consolidate forms so that they include necessary information not already included on laboratory chain-of-custody form.
- Add a column for the investigator to describe any odors detected at the time of sampling.
- Add a column for the investigator to describe general weather and hydrogeological conditions during sampling. This column will provide information needed to ensure that sampling occurred during "worst-case" conditions for petroleum volatilization into indoor air.

Remediation Approaches

If DEP believes there is a possibility that action levels would be exceeded without a radon fan operating, DEP recommends continuous use of the fan indefinitely. This recommendation is made only after DEP is confident that it has removed the bulk of the source and the homeowner is agreeable to continued operation of the fan. This approach is a pragmatic one given the limited time and resources available to DEP for returning to residences in subsequent months and years to determine when it is okay to turn off the fans. However, this approach has costs associated with it (e.g., the fan itself, increased electric bills), and residents may be concerned that they will not know when it is okay to turn off the fan. For example, they might want to turn it off if they ever choose to finish the basement as a habitable space. Ideally, DEP

would periodically sample during conditions most conducive to petroleum volatilization until air concentrations are below all action levels for two consecutive sampling rounds.

Adequacy of Action Levels

Residences investigated during the Trial Period are a fraction of those investigated each year. Therefore, all conclusions depend on how well they represent future investigation conditions. Results do not represent gasoline-impacted residences because none were investigated during the Trial Period.

Trial Period data suggest that residences impacted with no. 2 fuel oil rarely if ever exceed acute or subchronic action levels. Chronic action levels were exceeded fairly often, especially in initial stages of remediation, but levels dropped below chronic action levels for all compounds except naphthalene. To determine whether these exceedances are related to the spills or simply represent typical background levels in Maine residences, DEP could conduct a background study of Maine residences. Such a background study would also provide the opportunity to determine background benzene and petroleum fraction concentrations in Maine residences. Benzene is important because the chronic action level is based on published background data. Petroleum fraction information is important because very little such data are available.

Kerosene-impacted residences experienced more exceedances of subchronic action levels than no.2 fuel oil-impacted homes, despite the fact that fewer such residences were investigated. This result suggests that kerosene spills pose a greater risk to residents than no. 2 fuel oil spills over acute and subchronic exposure periods. While the study involves a very small sample size, this finding is reasonable given that kerosene is a somewhat more volatile mixture of hydrocarbons than no. 2 fuel oil.

Action levels for ethylbenzene and the US EPA reference concentration (RfC) for MTBE were never exceeded, but these compounds are important constituents of gasoline and may be important in investigations of gasoline-impacted residents. Therefore, they should remain on the analyte list. The RfC for MTBE would be appropriate for use as the chronic action level. If petroleum fractions are measured in the future, the TPHCWG developed RfCs for them that would be appropriate chronic action levels.

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Appendix A – Residential Investigation Summary Reports for Kerosene Releases
Appendix B – Residential Investigation Summary Reports for no. 2 Fuel Oil Releases
Appendix C – Residential Indoor Air Quality Database

DEP Spill #: **P-012-98**
Town: **Windham**
Fuel Type: **Kerosene**
Spill Discovered: **January 9, 1998**

Spill Description

On January 8, 1998, an ice-covered branch fell and broke the filter on an exterior above ground storage tank containing kerosene. The homeowner discovered the release the next day, when the tank emptied prematurely. Approximately 150 to 180 gallons of kerosene were spilled from the tank at the outside foundation wall. The interior crawl space walls were stained with kerosene that had wicked in from the outside. The home was without power as a result of a severe winter storm. Residents moved out on January 9th, as the kerosene odor increased during the day within the house. A trap door located in the living room accesses the crawl space. A single kerosene monitor, located in the living room, is used to heat the house.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

There were no potential indoor sources of petroleum reported. Potential outdoor sources of petroleum include a commercial stretch of Route 302, with heavy highway traffic passing in front of the home, as well as gas stations, a propane storage and distribution center, and a fuel oil bulk plant. Recent renovations in the home include replacing ceilings and carpet.

Reported Health Effects

Within 24 hours of the spill, prior to the residents moving out, reported health effects included nausea, dizziness and headaches. Although the residents had returned to their home by the February sampling, the health effects assessment was not complete. There were no reported health effects at the time of the May sampling.

Remediation

DEP started the investigation on January 12th, four days after the spill occurred. The home was still without power and there was a strong odor of kerosene. The following day, on January 13th, Seacoast Ocean Services vactored saturated sandy soils from the crawl space of the home. Soil was excavated at the foundation exterior between the tank and the chimney and at the foundation interior along the tank wall to the north and the west wall. Approximately 2 tons of contaminated soil were removed from the residence. Plastic was used to isolate the northern area of the crawl space during excavation. On January 21st , a poly vapor barrier was installed in the northern section of the crawl space. During the installation, the trap door was open and a temporary blower was used to withdraw dust and vapor from the crawl space. In addition, Servpro deodorized the home using conteractant pellets and an ozone machine. The next day, on January 22nd, a radon fan was installed to ventilate the crawl space. The radon fan has been operating since its installation, except during sampling.

Indoor Air Sampling

January 12-13,1998

PID Screening

On January 12th, screening level PID readings were non-detect in the living area and 21.3 ppm in the crawl space. On January 13th, PID readings were taken at the foundation exterior and interior excavations. In the trench on the outside of the foundation, readings ranged from 1020 ppm at a depth of 4 inches to 940 ppm at a depth of 12 inches. Readings inside the foundation along the tank wall ranged from 850 to 969 ppm at a depth of 24 inches and 940 ppm at a depth of 36 inches.

Odors

A mild kerosene odor was detected upon entering the house.

Sampling

Sampling included the collection of two, 22-hour, indoor air samples. A crawl space sampler was placed along the west wall adjacent to the sewer discharge. A living room sampler was placed on a chair, 2-feet from the trap door. Samples were collected prior to any remediation. Homeowners vacated the residence three days prior to the sampling period.

Results

During the first sampling round, prior to any remediation, benzene concentrations in the crawl space (43 ppb) and living room (22 ppb) exceeded the subchronic action level. Nonane concentrations in the crawl space (350 ppb) and living room (160 ppb) exceeded the chronic action level. Naphthalene concentrations in the crawl space (9.3 ppb) and living room (2.1 ppb) exceeded the chronic action level. In addition, the total xylenes concentration in the crawl space (176 ppb) exceeded the chronic action level. A duplicate sample in the crawl space was sent to Air Toxics Laboratory. Results showed higher concentrations for almost all compounds. Total petroleum hydrocarbons resembling the early portion of a diesel pattern ranged from 2.9 ppm in the crawl space to 6.2 ppm in the living room. Concentrations were highest in the crawl space.

January 14-15, 1998

PID Screening

On January 14th, screening indoor air samples using a PID ranged from 6 ppm in the living room to 45 ppm directly below the trap door. Readings in the living room increased to 12 ppm after the trap door was opened. On January 15th, first floor PID readings ranged from 7 ppm at the entry to 24 ppm at the trap door. Crawlspace PID readings ranged from 35 ppm at the trap door to 75 ppm behind the plastic, used to isolate the northern area of the crawl space. A reading of 136 ppm was detected in a pit in the crawl space, 4 feet beyond the excavated area.

Odors

Kerosene odors were detected upon entering the house.

Sampling

The second round of sampling included the collection of two, 24-hour, indoor air samples. One 24-hour outside sample was also collected at the residence. A basement sampler was placed in the crawl space and a second sampler was placed in the living

room. The location of the outside sampler was not available. These samples were collected the day after approximately 2-tons of saturated soils were removed from the outside tank area and from within the crawl space. However, patches of stained soil were evident at the surface where vactoring had occurred. Residents had not moved back into the house.

Results

One day after the excavation of soils in the crawl space, benzene concentrations in the crawl space (13 ppb) and living room (9 ppb) exceeded the chronic action level. The nonane concentration in the crawl space (110 ppb) exceeded the chronic action level. Duplicate samples for the crawl space and living room were sent to Air Toxics Laboratory. Results were relatively consistent with the exception that Air Toxics reported naphthalene concentrations in the crawl space (6 ppb) and living room (4.8 ppb) in exceedance of the chronic action level. Total petroleum hydrocarbons resembling the early portion of a diesel pattern ranged from 1.4 ppm in the crawl space to 1.3 ppm in the living room. Concentrations were highest in the crawl space, followed by the living area, and outside.

February 25-26, 1998

PID Screening

Screening indoor air samples using a PID ranged from 0 ppm to 1 ppm in the house.

Odors

Kerosene odors were not detected in the living area or crawl space areas.

Sampling

A third round of sampling included the collection of three, 24-hour, indoor air samples. Two crawl space samplers were placed on the inside of the vapor barrier, on the south wall, with one serving as a field blank. The radon fan exhaust line is located on the west wall. Soils appeared moist in areas of the crawl space previously vactored. One crawl space sampler was placed on the outside of the vapor barrier, on the west wall, adjacent to the sewer line and vapor barrier. A living room sampler was placed on a table next to the kitchen doorway, 2-feet from the trap door. During sampling, the house was heated using a single kerosene monitor located in the living room and the radon fan was operating. These samples were collected approximately one month after the installation of the crawl space vapor barrier and radon fan. Residents were living in the house during sampling.

Results

Action levels were not exceeded during the third round of sampling. Total petroleum hydrocarbons were non-detect at a detection limit of 0.36 ppm. With the exception of benzene, concentrations detected in the living room exceeded concentrations detected in the crawl space.

May 5-6, 1998

PID Screening

On the first day of sampling, screening indoor air samples using a PID ranged from 4 ppm on the first floor to 28 ppm inside the vapor barrier. On the second day of sampling, screening indoor air results using a PID were 2 ppm on the first floor, 21 ppm outside the crawl space vapor barrier, and 59 ppm inside the crawl space vapor barrier.

Odors

Kerosene odors were not detected in the living area, but a mild odor was detected in the crawl space. Occasionally, residents smell kerosene odors on warm days after they have been out of the house

Sampling

A fourth round of sampling included the collection of three, 24-hour, indoor air samples. One crawl space sampler was placed on the outside of the vapor barrier and two living area samplers were placed on the first floor, with one serving as a field duplicate. The radon fan was shut off during sampling and the house was heated overnight with a kerosene monitor. These samples were collected approximately three months after the installation of the crawl space vapor barrier and radon fan.

Results

Action levels were not exceeded. Total petroleum hydrocarbons were non-detect (detection limits ranged from 0.42 to 0.43 ppm). Except for benzene and toluene, the concentrations outside the vapor barrier were only slightly higher than concentrations in the living area.

Were DEP Indoor Air Action Levels Exceeded?

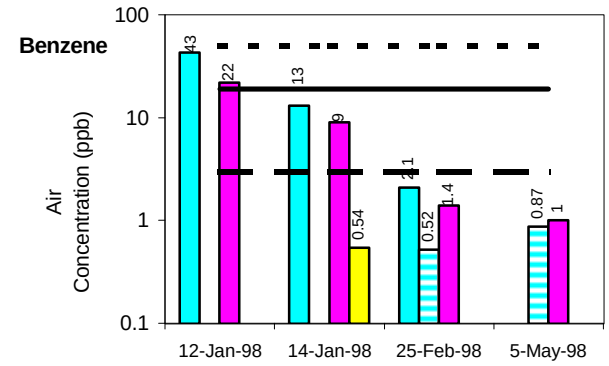
Action levels were exceeded in the first two sampling rounds. In the first round, benzene exceeded the subchronic action level in both the crawl space and living area. Chronic action levels were exceeded by nonane and naphthalene in the crawl space and living area and by total xylenes in the crawl space. In the second round, chronic action levels were exceeded by benzene in the crawl space and living area and by nonane in the crawl space.

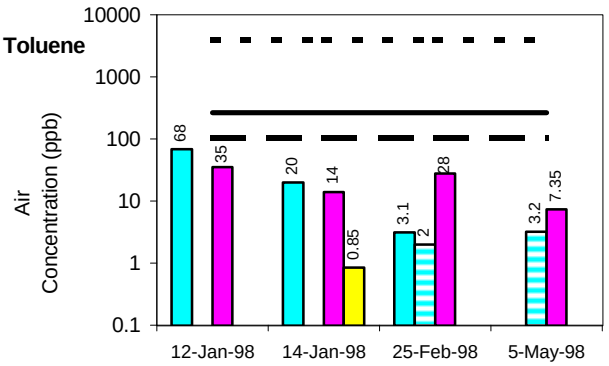
Potential for Future Indoor Air Quality Problems

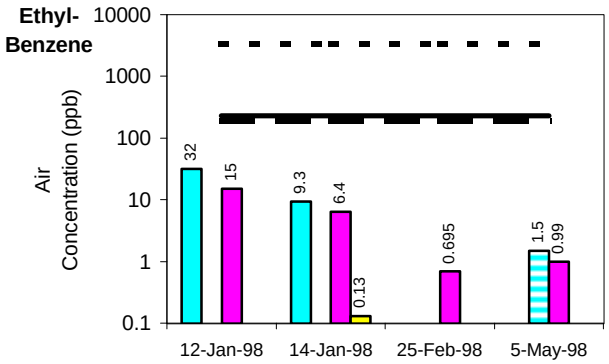
Could kerosene vapors be reintroduced in the living area upon disturbance of the vapor barrier or discontinuing operation of the radon fan?

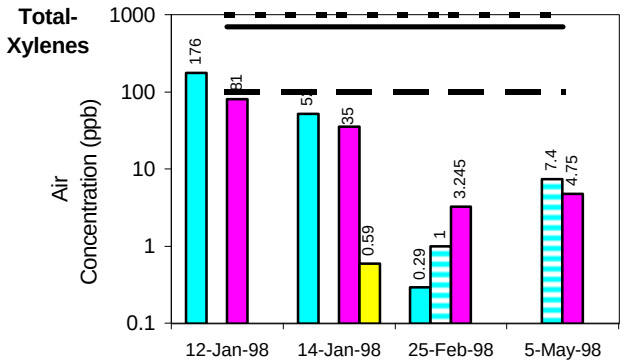
DEP Spill #: P-012-98; Windham
Fuel Type: Kerosene
Spill Discovered: 9-Jan-98

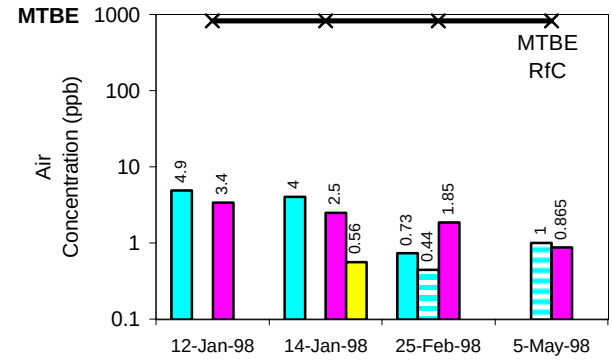
Key:
Crawlspace
Living area
Outside Vapor Bar.
Outside
Acute A.L.
Subchronic A.L.
Chronic A.L.

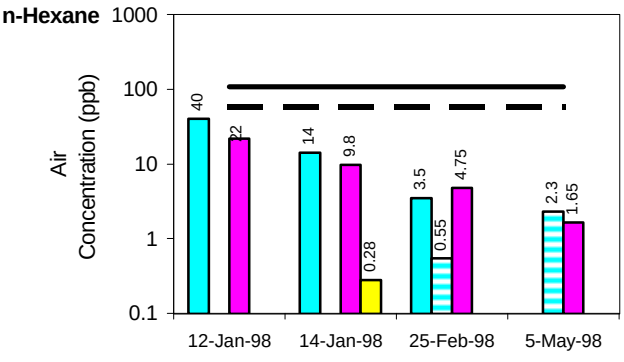


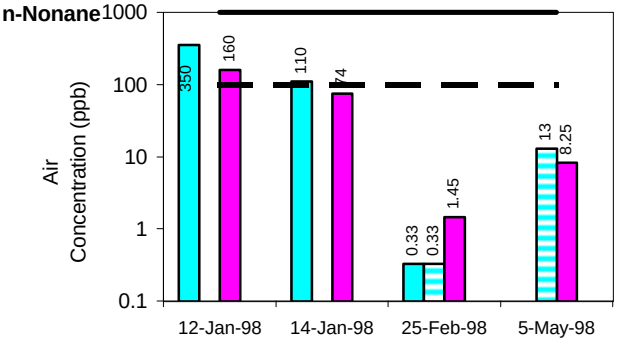


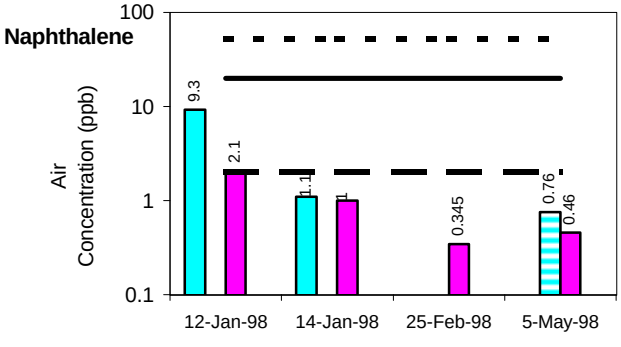












Notes:

1. The living area samples were collected on the first floor.
2. The dates represent the beginning of 22-hour (January 12) and subsequent 24-hour sampling periods.
3. An outside sample was collected January 14 only. Samples were collected outside the vapor barrier in February and May. Crawlspace samples were collected in January and one sample was collected inside the vapor barrier in February only. Otherwise, when a bar is not present, the compound was not detected.
4. Remedial activities included vactoring saturated soils on January 13. A vapor barrier and ventilation system were installed January 21 and 22.

DEP Spill #: **B-061-98**
Town: **Southwest Harbor**
Fuel Type: **Kerosene**
Spill Discovered: **January 22, 1998**

Spill Description

On January 22, 1998, a small hole in an outside kerosene tank was detected. The hole resulted in the release of approximately 300-600 gallons of kerosene. The pinhole may have dripped unnoticed for over a year. The kerosene was released onto the surrounding soil. It is believed that heavy rains caused the kerosene to spread into the crawlspace under the library. The library has 3 to 4 rooms, including one large room (25-feet by 70-feet) located above the spill area. All rooms were affected by fuel odors, but the largest room adjacent to the tank was affected the most.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

No potential indoor sources of petroleum were reported. The library is situated on a moderately, busy paved street with both a parking lot and a gas station nearby.

Reported Health Effects

Building occupants complained of nausea, confusion, throat irritation, drowsiness, headache, and difficulty concentrating.

Remediation

DEP started the investigation on January 27, 1998, several days after the spill was first noticed. Remedial activities included covering soil in the crawlspace with plastic, excavating 14 yards of contaminated soil, and installing a passive oil recovery well. No oil has been recovered to date. The exact location of the excavation was not identified. Two radon fans and one high-volume fan were installed in the crawlspace. Specific days when remedial activities occurred were not specified.

Indoor Air Sampling

January 27 and 31, 1998

PID Screening

On January 27th, baseline readings ranged from 40 to 75 ppm in the crawlspace and showed 3 ppm in the library. Crawlspace PID readings were over 200 ppm on January 31st.

Odors

On January 27th, the librarian reported “an intolerable fuel odor.”

February 13, 1998

PID Screening

On February 13th, PID readings were taken in the crawlspace area closest to the tank as well as the adjacent area, which is separated by a divider. The PID data ranged from 203 ppm to 27 ppm, respectively. PID readings were non-detect upstairs at the checkout desk.

Odors

A very slight fuel odor was detected.

Sampling

A 4-hour, indoor air sample was collected at the library. The sampler was placed on the checkout desk in the reading room. The library was heated by a kerosene fired, forced hot air system during the sampling period. Two radon fans and one high-volume fan were operating in the crawlspace under the sampled room. However, there is no direct air exchange between the crawl space and the sampled room.

Results

None of the compounds had concentrations exceeding action levels. Total petroleum hydrocarbons were not analyzed.

Were DEP Indoor Action Levels Exceeded?

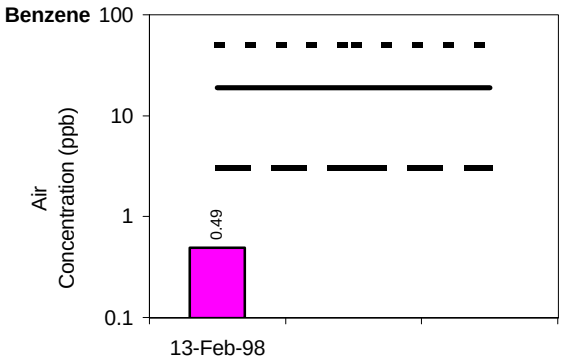
Action levels were not exceeded.

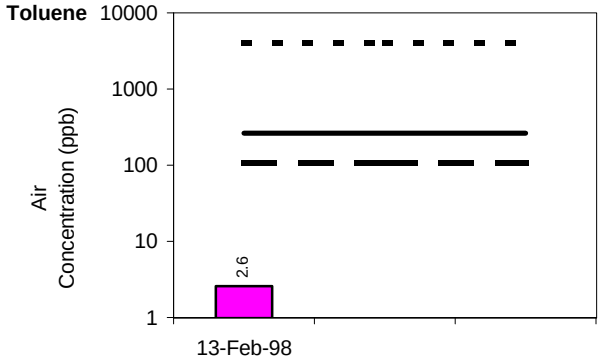
Potential for Future Indoor Air Quality Problems

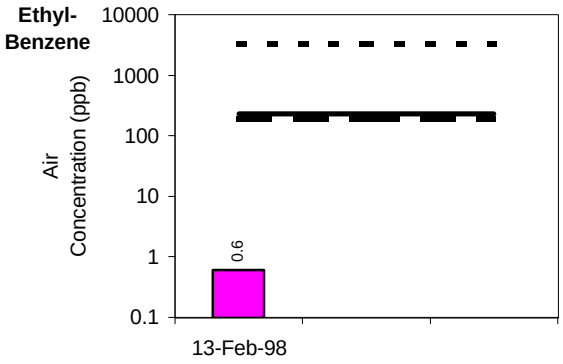
Could contamination be reintroduced in the crawlspace upon future flooding events or discontinuing operation of the fans?

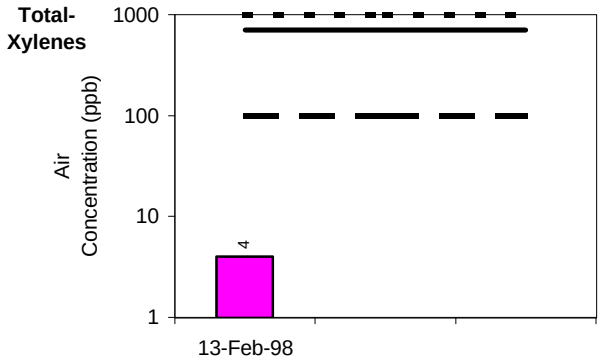
DEP Spill #: B-061-98; Southwest Harbor
Fuel Type: Kerosene
Spill Discovered: 22-Jan-98

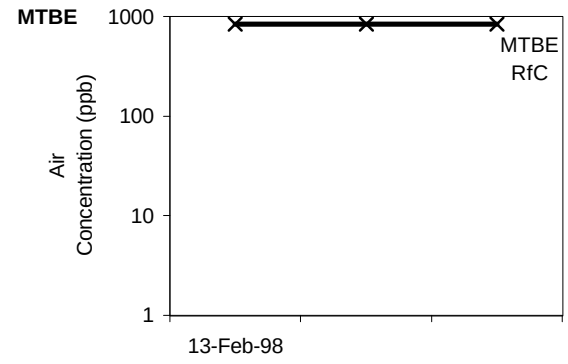
Key: Check-out desk; Acute A.L.; Subchronic A.L.; Chronic A.L.

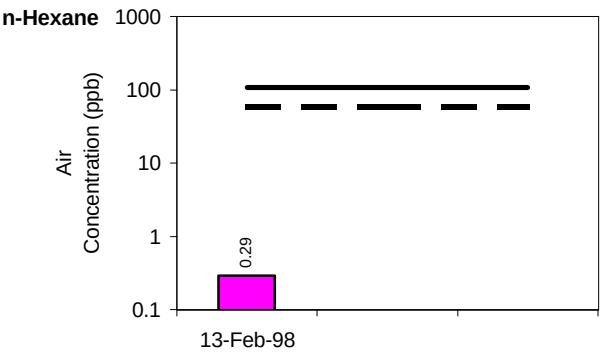


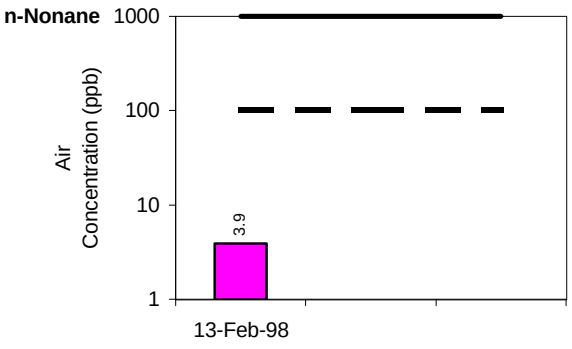


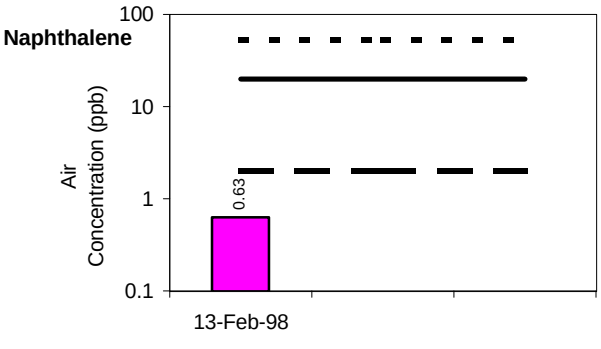












Notes:

1. The check-out desk sample was collected on the first floor above the spill area.
2. The dates represent the beginning of a 4-hour sampling period.
3. When a bar is not present, the compound was not detected.
4. Prior to sampling remedial activities included the excavation of contaminated soil, the installation of passive oil recovery well and a ventilation system.

DEP Spill #: **P-071-98**
Town: **Kennebunk**
Fuel Type: **Kerosene**
Spill Discovered: **February 5, 1998**

Spill Description

On February 5, 1998, a piece of ice fell off the roof and broke the shut-off valve on an exterior above-ground storage tank containing kerosene. Approximately 150 to 180 gallons of kerosene were spilled beneath the ice on the outside of the house. The extent of the release was not visible because the kerosene was beneath the ice. Kerosene entered the basement, which was added after the house was built, through seams and other openings in the concrete block foundation. Flooding in the basement resulted in a layer of kerosene on the surface of the water and on the interior foundation walls and support columns. Residents no longer pump the basement and as a result, groundwater floods the basement every fall. The basement is dry approximately 4 months of the year. The house is heated by a kerosene-fired, forced hot air system, with ducts to each room. The furnace draws air from the basement.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

No potential indoor or outdoor sources of petroleum were reported. Recent renovations include a new furnace, moved to the first floor because of basement flooding, and a new roof and wiring about 5 years ago. The house is situated on a busy, paved street.

Reported Health Effects

Health effects reported since the spill include a runny nose, mild headaches and shortness of breath. Shortness of breath may be attributed to chronic bronchitis experienced last winter. Residents evacuated the home during remedial activities. In March, residents did not complain of any adverse health effects; however, one resident noticed some eye irritation upon arrival at the house.

Remediation

DEP started the indoor air investigation on February 19, 1998, one day after the spill was reported. On February 23rd, approximately 13,700 gallons of water and kerosene were pumped from the basement and transported off-site. The water level in the basement was lowered from 2-feet to within 4-inches of the basement floor. A total of 5.71 tons of contaminated soil were excavated along the foundation exterior in the vicinity of the tank. The excavation extended to the water table approximately 3.5 feet below surface grade. A monitoring well was installed in the excavation. That same day, one-half inch of kerosene had to be pumped from the well. A new kerosene tank was installed on a pre-fabricated concrete pad in the same location as the previous tank. The following day, February 24th, the water level in the basement had recovered to 1.5 feet. A discontinuous kerosene film was present on the water's surface. Two days later, holes were drilled into the concrete block and clean water

was injected into the walls to flush kerosene from the interior voids in the concrete blocks. Kerosene was absorbed onto sorbent pads. The next day, on February 27th, 29 tons of soil were excavated along the entire southwestern exterior foundation wall (PID readings ranged from 0 to 1,500 ppm along the excavation). Kerosene saturated soil was noted from the front corner of the foundation to within 7-feet of the rear corner of the foundation. Kerosene seeped into the excavation from the water pipe openings and seams in the foundation. Two additional monitoring wells were installed in the excavation to monitor both water quality and the water table. During excavation activities, pumping and flushing techniques were used to further recover kerosene in the basement. On March 12th, the interior of the residence was cleaned and deodorized. Basement walls will be cleaned when the water table subsides, possibly in July or August.

Indoor Air Sampling

February 19-20, 1998

PID Screening

Screening PID readings were 181 ppm upon entry to the house near the driveway and 230 ppm in the house.

Odors

A strong fuel oil odor was detected upon entry to the house.

Sampling

The first sampling round included the collection of two 24-hour, indoor air samples and one 24-hour outdoor sample. A kitchen sampler was centrally located in the living area. A basement sampler was placed on the bulkhead stairs leading to the basement and a third sampler was placed outside in the backyard, next to a pine tree. These samples were collected prior to any remediation at the house. During sampling, the house was heated by a kerosene furnace and central warm air.

Results

Prior to any remediation, several action levels were exceeded including the acute action level for naphthalene. Naphthalene concentrations in the basement (65 ppb) and the kitchen (45 ppb) exceeded the acute and subchronic action levels, respectively. Nonane concentrations in the basement (1,300 ppb) and the kitchen (1,500 ppb) exceeded the subchronic action level. An acute action level for nonane is not available. Total xylenes concentrations in the basement (930 ppb) and the kitchen (820 ppb) exceeded the subchronic action level. Benzene concentrations in the basement (7.3 ppb) and the kitchen (5.2 ppb) exceeded the chronic action level. The benzene concentration detected in the kitchen was a trace value, below the reporting limit of 6.3 ppb, which is above the chronic action level. Total petroleum hydrocarbons analyzed as kerosene ranged from 28 ppm in the kitchen to 37 ppm in the basement. Petroleum hydrocarbons were detected at 5.3 ppm in the outside sample. Concentrations were similarly elevated for all compounds in the basement and kitchen.

March 18-19, 1998

PID Screening

On March 18th, PID readings of 2 to 4 ppm were detected throughout the first floor and at the basement bulkhead.

Odors

No fuel odors were evident at the time of the sampling.

Sampling

A second round of sampling included the collection of three, 24-hour, indoor air samples. Kitchen and basement samplers were placed in the same locations as the previous sampling round. A third sampler was placed in the living room. The house was heated during sampling. Samples were collected three weeks after remedial activities to evaluate the effectiveness of the cleanup.

Results

Action levels were not exceeded. TPH as kerosene was not detected (detection limits ranged from 0.47 ppm to 0.51 ppm). With the exception of nonane and naphthalene, concentrations were the highest in the basement, followed by the living room, and kitchen.

May 19-20, 1998

PID Screening

Screening level PID readings were 0 ppm in the basement and kitchen.

Odors

A faint fuel odor was evident in the basement, but not in the kitchen.

Sampling

A third round of sampling included the collection of thee, 24-hour, indoor air samples. The samplers were placed in the same locations as the previous sampling round, including the kitchen, basement, and living room. The television room noted on the chain of custody was interpreted to be the first floor living room. These samples were collected 3 months after extensive remedial activities at the house. The basement bulkhead and windows as well as the upstairs windows and door were open in the daytime, during sampling. The house was naturally ventilated for 7 hours on the first day of sampling and 10 hours on the second day of sampling.

Results

During the third sampling period contaminant concentrations were low and none exceeded any action levels. Petroleum hydrocarbons as diesel were non-detect (detection limits ranged from 0.35 ppm to 0.39 ppm). In general, the highest concentrations were detected in the living room.

Were DEP Indoor Air Action Levels Exceeded?

Action levels were only exceeded during the first sampling round. During this period naphthalene in the basement exceeded the acute action level, while naphthalene in the kitchen exceeded the subchronic action level. Total xylenes and nonane exceeded the subchronic action levels and benzene exceeded the chronic action level in the basement and kitchen.

Potential for Future Indoor Air Quality Problems

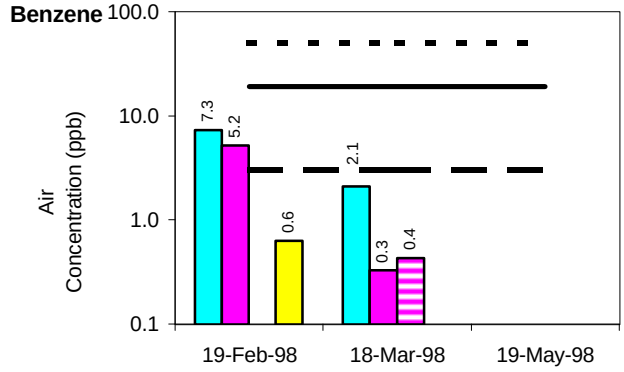
The owner stated that the basement floods every fall and is only dry approximately 4 months of the year. Could flooding next fall reintroduce contamination in the basement?

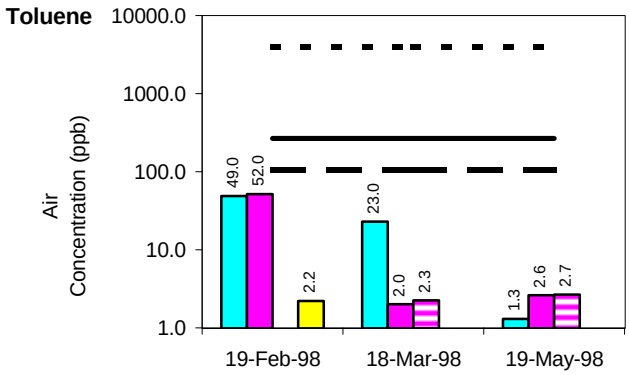
DEP Spill #: P-071-98; Kennebunk

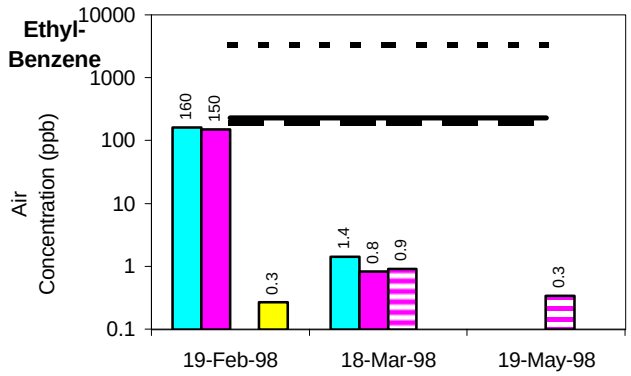
Fuel Type: Kerosene

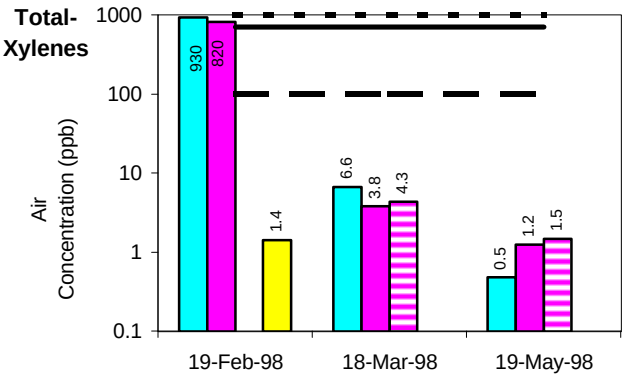
Spill Discovered: 5-Feb-98

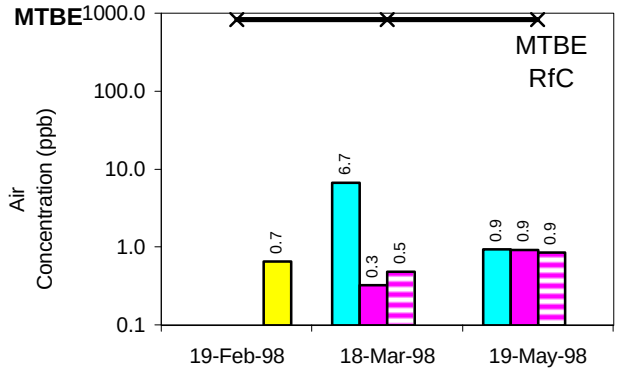
Key: Basement, Kitchen, Living Room, Outside, Acute A.L., Subchronic A.L., Chronic A.L.

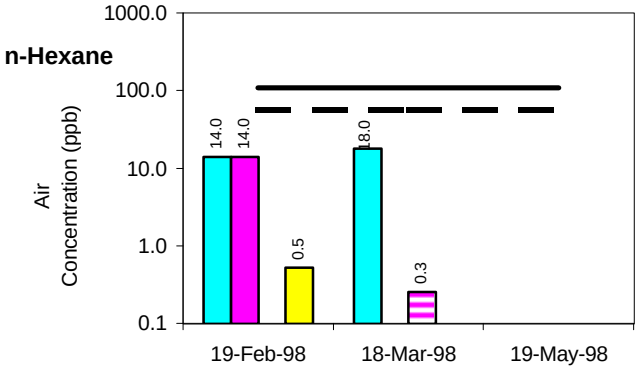


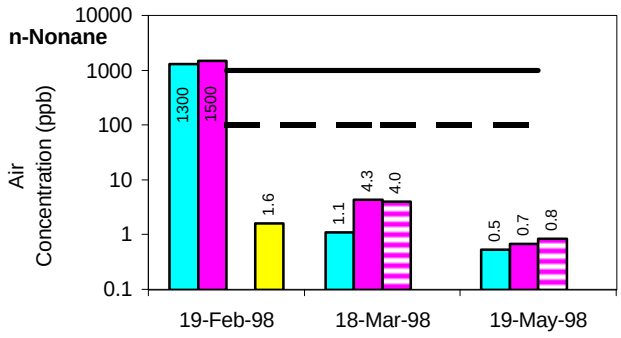


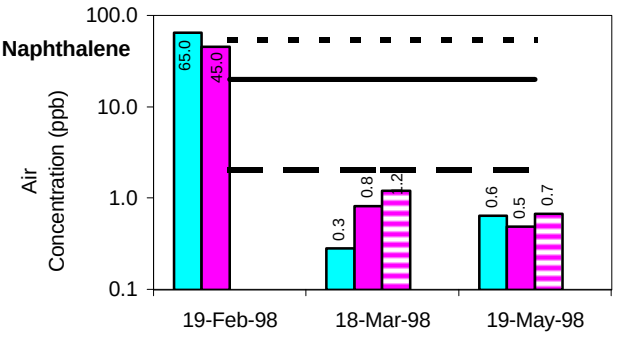












Notes:

1. The kitchen and living room samples were collected on the first floor.
2. The benzene concentration detected in the kitchen (5.2 ppb) was qualified a trace value, below the elevated detection limit of 6.3 ppb.
3. The dates represent the beginning of 24-hour sampling periods.
4. An outside sample was collected in February only. The living room samples were collected in March and May only. Otherwise, when a bar is not present, compound was not detected.
5. No remedial activities were conducted prior to the February sampling. March samples were collected after vacuuming water and kerosene from the basement, soil excavating, flushing the foundation walls, and cleaning the interior walls and ceilings.

DEP Spill #: **P-003-98**
Town: **Auburn**
Fuel Type: **No. 2 Fuel Oil**
Spill Discovered: **January 2, 1998**

Spill Description

On January 2, 1998, approximately 70 gallons of No. 2 fuel oil were pumped onto the basement floor. The spill was the result of an oil delivery to a residence with a visible vent line and fill line, but no tank attached. Fuel oil was being pumped into the fill pipe when the homeowner arrived home and stopped the delivery. The fill pipe discharges into the basement, which has brick foundation walls and a concrete slab floor. Oil soaked the majority of the floor, from the stairs to the sump. Areas of the house impacted by the spill included the basement floor and sub-slab.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

Potential indoor sources of petroleum include a paint closet in the basement in a separate room from the spill and use of a gas stove. Ongoing remodeling at the house included a new porch over the summer, 6 months prior to the spill. Potential outdoor sources of petroleum include adjacent homes, which have oil heat.

Reported Health Effects

Residents reported no health effects.

Remediation

Immediately after the spill, the oil company conducted cleanup activities for several weeks. These activities included vactoring fuel oil from the floor and walls, cleaning the floor, removing a small area of concrete floor (5 feet by 8 inches) and associated contaminated soil, along the length of the abandoned copper line, and removing wood partitions. Window fans and two radon fans, mounted to the ceiling, were used to ventilate air in the basement. However, after several weeks, the homeowner was not satisfied with this effort and called DEP. DEP started the air quality investigation four weeks after the spill occurred, on January 28, 1998.

Seacoast Ocean Services (SOS) conducted limited excavation activities on February 11, 1998, but work ceased because significant dust was being generated and initial screening results were low. On February 13, 1998, SOS vacuumed out the “old” chimney and installed borings in the floor along the rear wall of the basement between the brick pillar and the fill pipe. Composite subsurface soils were sampled from five borings in this area. In addition, composite subsurface soils were sampled from two borings at the rear of the chimney, near the fire box, facing the door. Soil samples were analyzed for diesel range organics and results ranged from less than 5 mg/kg at the wall to 10 mg/kg at the chimney. Following sampling, wet rags were used to wipe down everything in the basement, and the floor was vacuumed and cleaned. On February 17th, SOS power-washed the basement using an organic solvent/bacteria formula containing terpene as the final wash.

Some time prior to the third round of sampling in March, areas of the basement floor and walls

were patched to seal existing cracks and sub-slab excavation.

Indoor Air Sampling

January 28-29,1998

PID Screening

Screening indoor air samples using a PID showed 8 ppm where the concrete wall abuts the brick walls and brick columns.

Odors

The basement smelled of fuel oil and there was a slight fuel oil odor detected in the laundry room at the head of the basement stairs.

Sampling

Following oil company cleanup activities, one 20-hour indoor air sample was collected in the basement beneath the basement stairs on the floor leaning against the brick wall. The fill line where fuel was delivered is located approximately 6 feet above the sampler location. Prior to the sampling period, the cellar had been ventilated with window fans and two radon fans, which were shut off 5 minutes prior to sample collection for the entire sampling period. During this sampling period, the house was heated using natural gas and a steam/hot water furnace system. Although most of the fuel oil was contained within and recovered from the basement floor, fuel oil wicking from below the slab was evident at several locations where the concrete floor abuts the brick walls and brick columns.

Results

Action levels were not exceeded during the first round of sampling in the basement. TPH was not detected in the sample at a detection limit of 0.36 ppm.

February 3-4, 1998

PID Screening

PID readings were not collected during this sampling round.

Odors

Homeowners continued to smell fuel oil on the first floor, specifically in the laundry room and hallway by the front door.

Sampling

One week after the first sampling round, three 24-hour indoor air samples and one 24-hour outdoor air sample were collected. Two basement samplers were placed in the same location as the first round, with one serving as a field duplicate. A third sampler was placed in the laundry room, which is a small room located on the first floor, at the top of the basement stairs. The sampler was placed on a table immediately adjacent to the basement doorway. A fourth sampler was placed outside. Details on the location of the outside sampler were not available. The window and radon fans were shut off during the sampling period. Sampling forms were not completed for this sampling round.

Results

The chronic action level for benzene was exceeded in the basement (4.3 ppb vs. 3 ppb). All samples were non-detect for TPH (detection limits ranged from 0.37 to 0.4 ppm). For all compounds, basement concentrations are greater than basement concentrations measured in the previous sampling period. The reason for this difference is not apparent. No additional cleanup

activities occurred between these two sampling rounds, and conditions during sampling were similar (i.e., same sampling locations with fan operation discontinued during sampling). General weather conditions for the January sampling event were clear with the temperature reported at 25 degrees Fahrenheit. Although weather conditions were not available for the February sampling period the following week, temperatures were likely to have been similar.

March 4-5, 1998

PID Screening

PID readings were 24 ppm near the basement sample locations, 0 ppm elsewhere in the basement, and 8 ppm by an abandoned chimney. SOS attributed the elevated PID readings in the basement to the terpene- based floor cleaner used approximately two weeks prior to sampling.

Odors

Slight fuel oil odors were detected in the basement and no odor was detected upstairs. However, on the second day of sampling, fuel oil odors were detected at the entry to the basement stairs.

Sampling

Two months after the spill, a third round of indoor air samples was collected at the residence. Between the second and third sampling rounds, a limited excavation and sub-slab soil sampling were conducted. Areas of the basement floor and walls were patched to seal existing cracks and sub-slab excavation. During this sampling period, the house was heated using natural gas and a steam/hot water furnace system. Four 24-hour indoor air samples were collected. Basement and laundry room samplers were placed in the same locations as the earlier sampling rounds. Two samplers were placed at the top of the basement stairway on a shelf, with one serving as a field blank. Window fans and two radon fans were shut off 30 minutes prior to sample collection for the entire sampling period.

Results

Action levels were not exceeded. TPH was not detected at a detection limit of 0.35 ppm. All compound concentrations were lower than in previous sampling rounds, with the exception of toluene in the laundry room only. Although, the toluene concentration in the laundry room (8.2 ppb) was significantly lower than the chronic action level of 106 ppb. It is possible that a source of toluene other than the spill was present in this room, although none were reported. The terpene-based floor cleaner used in the basement approximately two weeks prior to sampling does not appear to be the source because toluene concentrations were lowest in the basement. The field blank co-located at the top of the basement stairs had toluene detected at 0.81 ppb. However, even with consideration of this measure of sampling error, toluene still appears slightly elevated in the laundry room. Decreasing concentrations of other compounds may be due to patching of the basement floor and walls as well as fuel oil degradation with time.

Were DEP Indoor Air Action Levels Exceeded?

During the second round of sampling, the chronic action level for benzene was exceeded in the basement (4.3 ppb vs. 3 ppb). All samples were collected following the bulk of remediation efforts; therefore, it is not known whether action levels were exceeded during the spill or any other time during several weeks of remediation.

Potential for Future Indoor Air Quality Problems

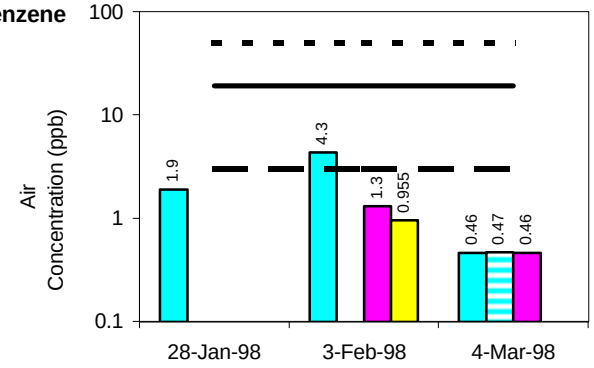
Could contamination be reintroduced by future flooding events, disturbance of the basement

floor (e.g, during construction or renovation work), or discontinuing operation of the radon fans?

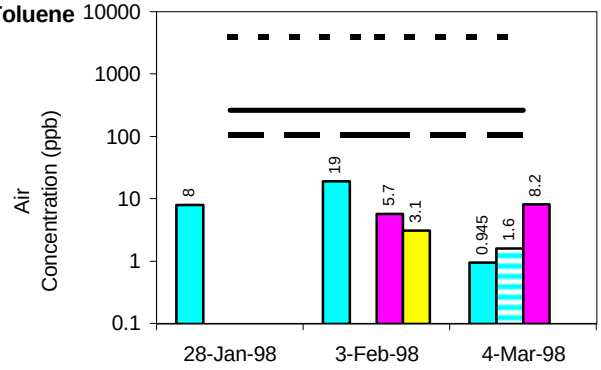
DEP Spill #: P-003-98; Auburn
Fuel Type: No. 2 Fuel Oil
Spill Discovered: 2-Jan-98

Key:
Basement
Basement Stairs
Laundry
Outside
Acute A.L.
Subchronic A.L.
Chronic A.L.

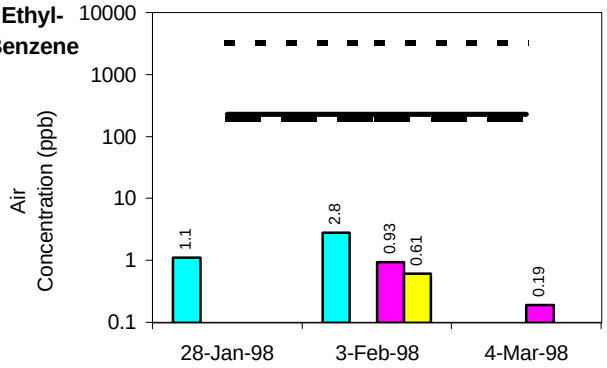
Benzene



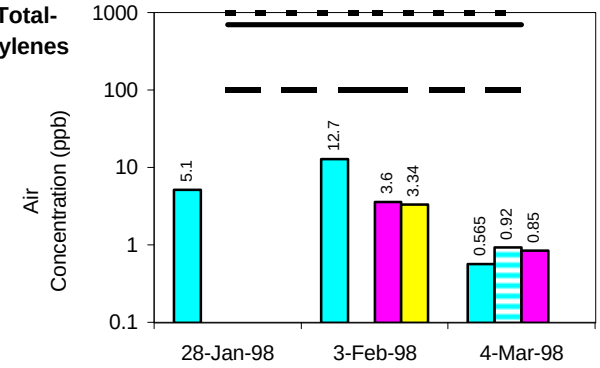
Toluene



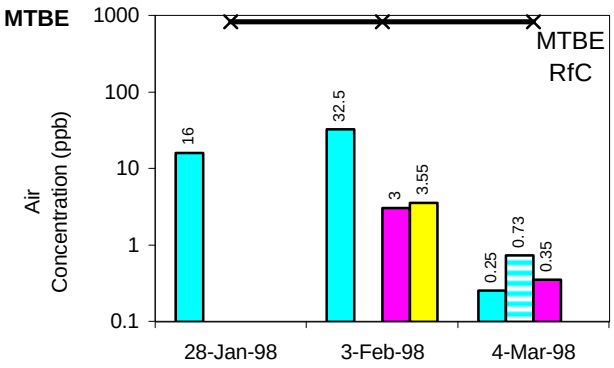
Ethyl-Benzene



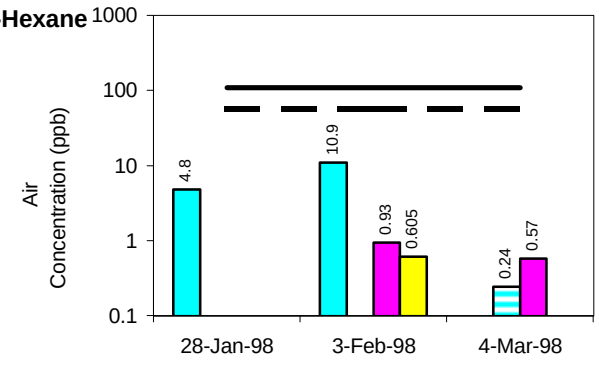
Total-Xylenes



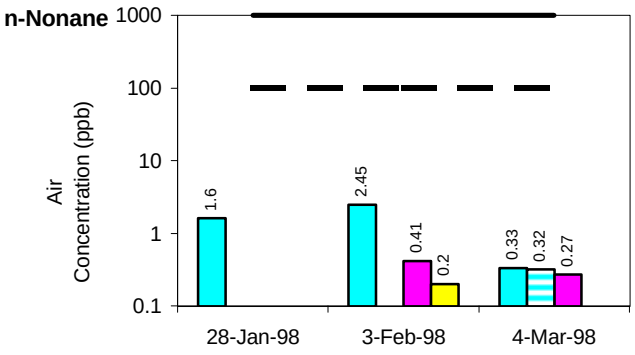
MTBE



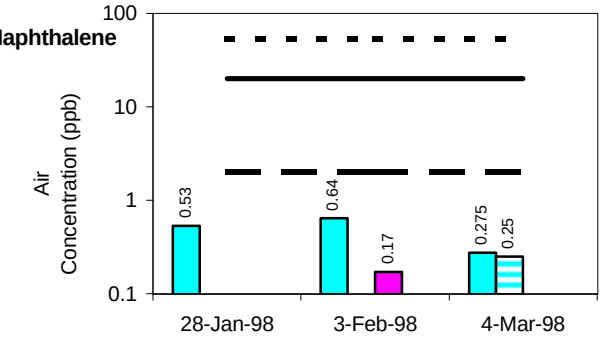
n-Hexane



n-Nonane



Naphthalene



Notes:
1. The laundry room sample was collected on the first floor, and basement stair samples were collected adjacent to the laundry room.
2. The dates represent the beginning of 20-hour (Jan) and subsequent 24-hour sampling periods.
3. Only a basement sample was collected in January. An outdoor sample was collected in February only. Basement stair samples were collected in March only. Otherwise, when a bar is not present, the compound was not detected.
4. Remedial activities prior to Jan. involved vactoring fuel, excavating contaminated sub-slab soil, and installing a ventilation system. Between Feb. 13 and 17, the chimney was cleaned, floor borings were drilled to collect soil samples, the floor in the basement was washed with organic solvent, and the basement floor and walls were patched.

DEP Spill #: **A-020-97**
Town: **Augusta**
Fuel Type: **No. 2 Fuel Oil**
Spill Discovered: **January 22, 1997**

Spill Description

On January 22, 1997, the residents' fuel oil tank released its entire contents onto the basement floor. The spill was the result of an incorrectly threaded tank fill pipe. The pipe became loose during the filling of the tank, and the entire delivery of 100 gallons of No. 2 fuel oil ran onto the basement floor. Areas of the house impacted by the spill included the basement floor, which is a floating, concrete slab.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

Potential indoor sources included the oil tank, several gas powered devices stored in the basement, and a sealer on the concrete basement floor. The house, built after 1986, has an attached garage and is on a dirt road. Pipes are smoked at the residence.

Reported Health Effects

Because the resident was not available during sampling, health effects were not reported.

Remediation

Immediately following the spill, oil was vacuumed from the basement and the floor was cleaned; however, most of the oil escaped the basement through the gap between the walls and the floor. A xylene-based sealer (Dan Cryl 25) was applied to the concrete basement floor a few weeks prior to October sampling to prevent oil vapors from permeating the floor. On October 29, 1997, approximately 9 months after the spill, DEP investigated the house in response to a homeowner complaint of fuel oil vapors. In July 1998, DEP proposed to drill holes through the slab for venting vapors. Although homeowners have not permitted DEP to drill holes, they plan to have the gap around the slab sealed.

Indoor Air Sampling

October 29-30, 1997

PID Screening

Screening indoor air samples using a PID ranged from 1 to 4 ppm in the basement air space and 61.5 ppm in the basement floor gap, where the wall meets the floor.

Odors

Residents complained of fuel oil odors a few days prior to sampling. However, DEP reported that odors from a floor sealer were a potential source.

Sampling

One round of air samples was collected at the residence, which included the collection of two, 24-hour, indoor air samples and one, 24-hour, outdoor air sample. A basement sampler was placed near the oil tank, 2-feet off the floor. A living area sampler was placed in the dining room, near the kitchen opening, 3-feet off the floor. The outdoor sampler was placed on the back lawn, upwind of the residence, in the vicinity of the leech field. With the exception of sealing the floor, remedial activities in the basement had been completed 9 months prior to the sampling period. Several gas-powered devices were removed from the basement 24-hours prior to the beginning of the sampling period. The house contains an air-cleaning filter and may have been heated during sampling by oil and a hot water/steam furnace.

Results

Only the naphthalene concentration detected in the basement (4.7 ppb) exceeded the chronic action level. Elevated concentrations of total xylenes (89 ppb) detected in the basement may be attributed to the recently used floor sealer. There was no analysis for total petroleum hydrocarbons at the residence. Concentrations were highest in the basement, followed by the living area, and outside.

Were DEP Indoor Air Action Levels Exceeded?

Naphthalene exceeded the chronic action level in the basement.

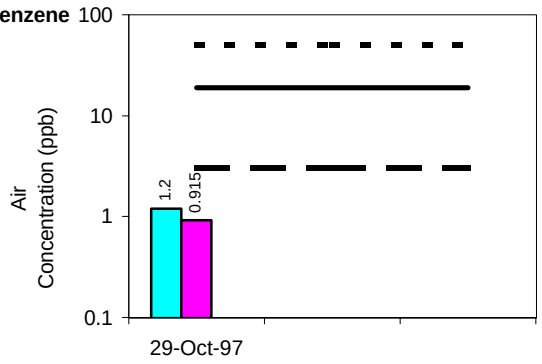
Potential for Future Indoor Air Quality Problems

Could contamination be reintroduced by disturbance of the basement floor (floating slab)? Are additional indoor air samples needed to confirm concentrations are below action levels?

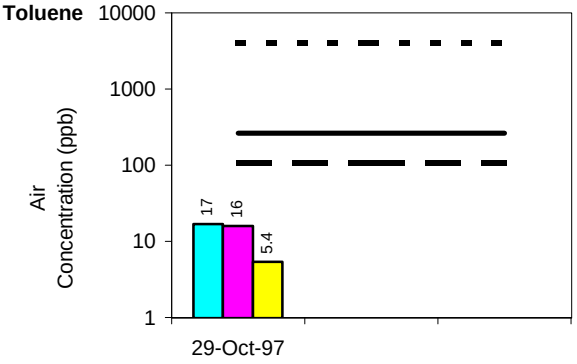
DEP Spill #: A-020-97; Augusta
Fuel Type: No. 2 Fuel Oil
Spill Discovered: 22-Jan-97

Key: Basement; Living area; Outside; Acute A.L.; Subchronic A.L.; Chronic A.L.

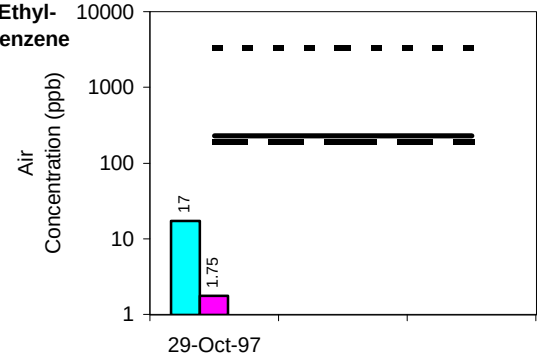
Benzene



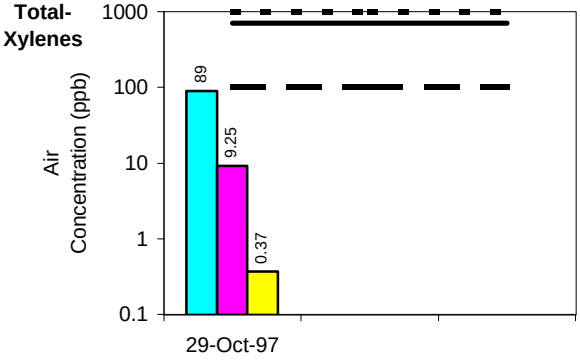
Toluene



Ethyl-Benzene



Total-Xylenes



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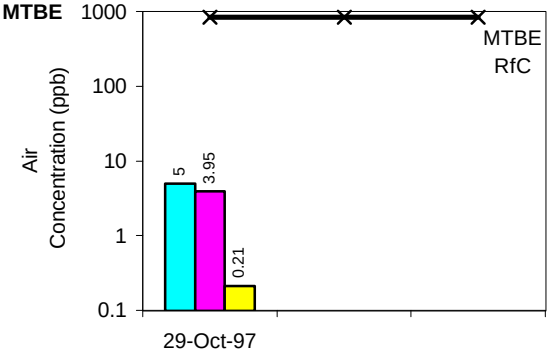
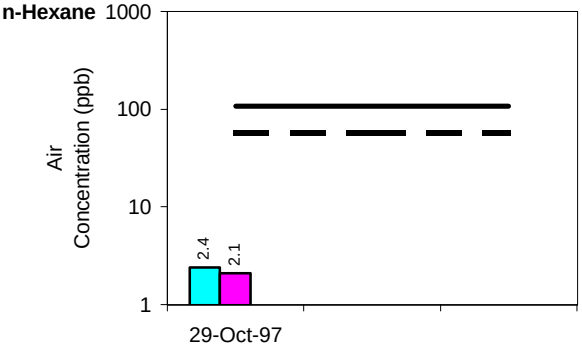
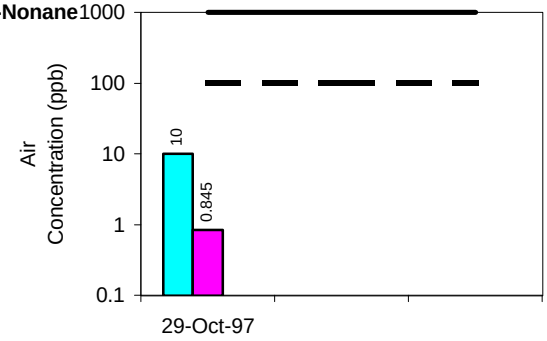


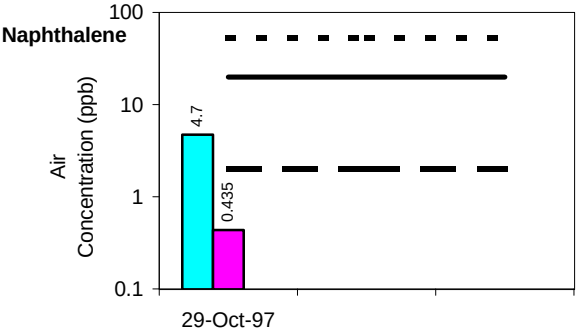
n-Hexane



n-Nonane



Naphthalene



Notes:

1. The living area sample was collected on the first floor.
2. The dates represent the beginning of a 24-hour sampling period.
3. When a bar is not present, the compound was not detected.
4. Remedial activities included vacuuming oil from the floor 9 months prior to sampling, and sealing the basement floor with a xylene-based sealer a few weeks prior to sampling.

DEP Spill #: **B-055-98**
Town: **Newburgh**
Fuel Type: **No. 2 Fuel Oil**
Spill Discovered: **January 24, 1998**

Spill Description

On January 24, 1998, a small hole in a basement oil tank caused by metal fatigue resulted in the release of 150 to 200 gallons of No. 2 fuel oil. The fuel oil was released onto the concrete floor of the tank room, which is a small, 10x10-foot room in the basement. There is no door between this room and the rest of the basement, but a tank room vent connects to the rest of the basement. Areas of the house impacted by the spill included the tank room floor and sump. Oil infiltrated cracks between the floor and wall in the tank room.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

Potential indoor sources of petroleum included paint cans, cleaning or refinishing solvents, and the oil tank, all located in the basement. There is a wood stove in the living room, and residents cook on a gas stove.

Reported Health Effects

Residents experienced runny nose, eye irritation, coughing, dizziness, throat irritation, and headaches since the spill, but were experiencing only headaches at the time of the investigation.

Remediation

DEP started the investigation the same day the spill occurred on January 24, 1998. Remedial activities conducted by Clean Harbors included grinding, cleaning, and painting the basement floor. An epoxy paint was applied to the floor on February 2-3, 1998. In addition, the tank room was enclosed with plastic, and a radon fan was installed to create an escape for the vapors. Exterior soils were excavated, but the area of excavation was not identified. Remedial activities occurred between January 28 and February 11, 1998.

Indoor Air Sampling

January 28 - February 11, 1998
PID Screening

PID readings were collected at the residence during remedial activities. PID readings on January 28th ranged from over 160 ppm in the basement to 81 to 114 ppm in the living area. Post-corrective action PID readings at the tank room vent ranged from 31.8 ppm on February 2nd to 0 ppm on February 11th.

February 13, 1998
Odors

A fuel oil odor was detected during sampling in the first floor study.

Sampling

One 4-hour indoor air sample was collected. The sampler was placed on a bookcase, in a first floor study. This sample was collected following remedial activities at the residence, including the installation of a radon fan. A wood stove in the living room was not used for three days prior to sampling. During sampling, the house was heated and residents restored antiques, mostly in the unattached garage, approximately 100 feet from the house. The radon fan installed in the basement was operating.

Results

The naphthalene concentration detected in the first floor study (2.2 ppb) slightly exceeded the chronic action level. The sample was not analyzed for TPH.

Were DEP Indoor Air Action Levels Exceeded?

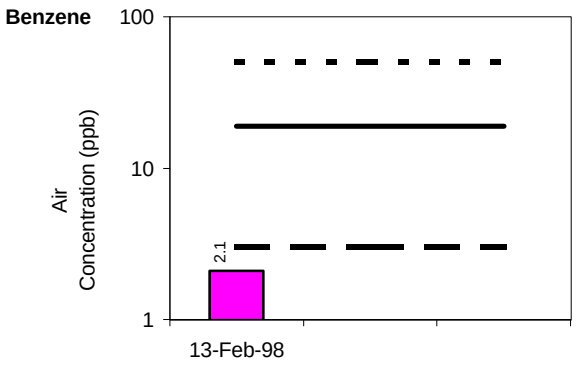
Naphthalene exceeded the chronic action level.

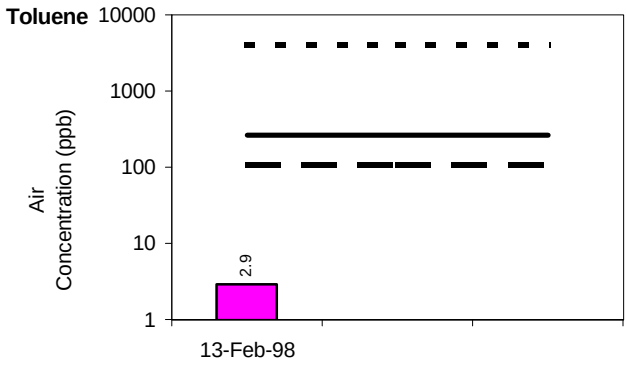
Potential for Future Indoor Air Quality Problems

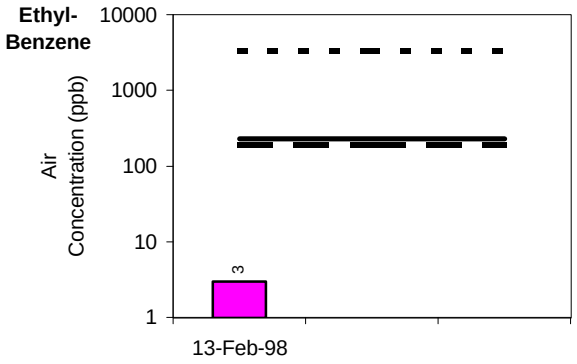
Could contamination be reintroduced in the basement upon disturbance of the basement floor or discontinuing operation of the radon fan? Are confirmatory indoor air samples needed to ensure that concentrations are below chronic action levels?

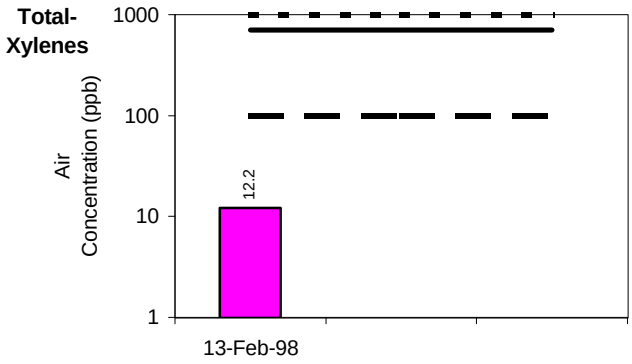
DEP Spill #: B-055-98; Newburgh
Fuel Type: No. 2 Fuel Oil
Spill Discovered: 24-Jan-98

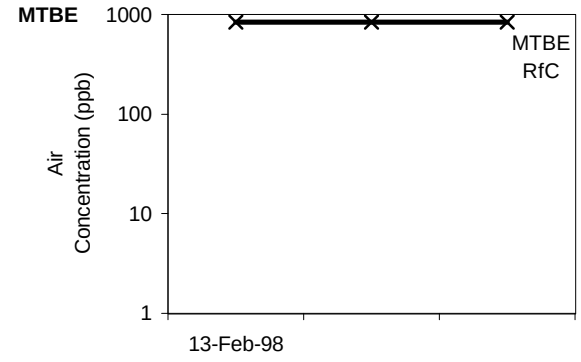
Key: Study (1st floor); Acute A.L.; Subchronic A.L.; Chronic A.L.

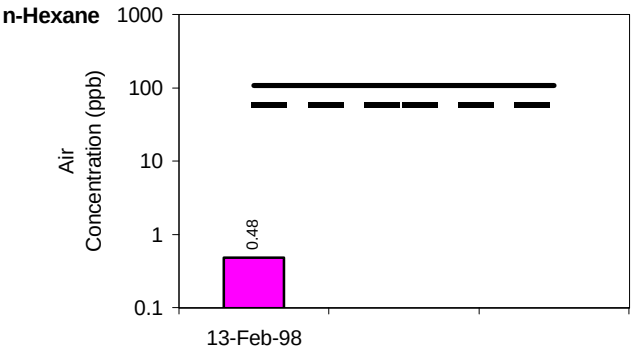


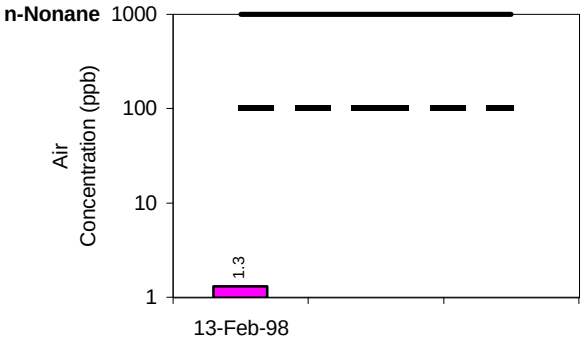


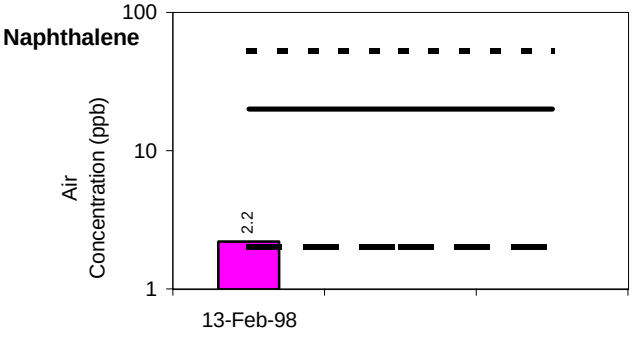












Notes:

1. The study sample was collected on the first floor.
2. The dates represent the beginning of a 4-hour sampling period.
3. When a bar is not present, the compound was not detected.
4. Prior to sampling remedial activities included painting the basement floor, excavating exterior soils, enclosing the tank room with plastic, and installing a fan.

DEP Spill #: **P-087-98**
Town: **Cumberland Foreside**
Fuel Type: **No. 2 Fuel Oil**
Spill Discovered: **February 26, 1998**

Spill Description

On February 26, 1998, residents discovered that their sub-slab fuel oil line was leaking when they found their sump full of oil. Based on prior fuel oil bills, it was estimated that the line had been leaking for approximately 6 months, since September 1997. The estimated quantity of the spill is 250 to 300 gallons of No. 2 fuel oil. The split-entry house has an attached garage, beneath the upper level and adjacent to a finished basement family room. Areas of the house impacted by the spill included the finished basement sub-slab, the garage sump, and the perimeter drain system.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

Potential indoor sources of petroleum included open containers of paint and paint thinners, as well as the oil tank in the basement and a gas can in the garage.

Reported Health Effects

Health effects experienced since the spill included runny nose, minor coughing, and throat irritation. Residents did not complain of any health effects during the two sampling periods.

Remediation

One day prior to the discovery of the spill, an oil odor in the family room thought to be the result of oil seeping out around the bungs of the oil tank prompted the use of some deodorizer. DEP started the investigation the day the spill was discovered, February 26, 1998. That same day, the fuel oil line, which ran under a cement and tile floor in a finished, basement family room, was replaced. In addition, oil in the sump, located in the attached garage, was pumped. The majority of the standing oil was collected from the sump, with approximately 150 gallons recovered. At the sump, two sub-slab drains junction with a sealed, outlet drain. It was noted that while the sump was being pumped, oil was running out of the perimeter drain system, on the north side of the house. Due to the strong fuel oil odor in the family room, a window fan was placed in one of the windows. On February 27th, Clean Harbors attempted to Vac-Tor the perimeter drain system in an effort to pull more product from under the floor and along the perimeter drain. Very little product was collected and the sump was cleaned out a second time. On March 3rd, Clean Harbors pumped down the sump a third time, which was full of water and oil due to rain over the weekend. On March 5th, filter canisters were placed in the house to help eliminate the fuel oil odor. On March 6th, a radon fan was connected to the sump in the garage and on April 2nd, fan exhaust was piped through the east window on the south side of the garage and extended to the roof-line, along the exterior wall.

Indoor Air Sampling

March 4-5, 1998

PID Screening

Screening indoor air samples using a PID showed less than 2 ppm in the basement and less than 1 ppm on the upper level.

Odors

Fuel oil odors were detected in the basement, family room and garage.

Sampling

The first sampling round included the collection of three, 24-hour, indoor air samples. A basement sampler was placed in a finished, family room, on the lower level of this split-entry home. The furnace and oil tank are enclosed behind partitions on opposite sides of the family room. The basement sampler was placed half way up the wall, adjacent to a window and the enclosed oil tank. A laundry closet is located in the family room. A door from the family room leads to an entry area and the attached garage. A second sampler was placed on the third step of the entry area, leading up to the front entrance of the house. This lower level sample was between the doors leading to the garage and family room. The third sampler was placed on the upper level of the house, on the brick hearth, in the living room. A vent from the basement family room is at the foot of the hearth. No outdoor samples were collected. During the sampling period, the house was heated by a hot water furnace, and the family room window fan was removed and the window was shut. The garage door remained open during the day and a dining room and master bedroom window were open. The first round of sampling took place one day after the sump had been cleaned out for the third and final time. It was noted that very little oil was present on pads in the sump and the water level in the sump was low.

Results

The benzene concentration detected in the basement family room (3.2 ppb) slightly exceeded the chronic action level. Naphthalene concentrations detected in the basement family room (3.2 ppb) and upstairs living room (2.2 ppb) exceeded the chronic action level. TPH, detected in the basement sample at 0.52 ppm, did not resemble a diesel pattern. All contaminant concentrations were highest in the basement, with relatively similar concentrations detected in the entry area and living room.

April 30-May 1, 1998

PID Screening

Screening PID samples showed 2 ppm in the basement and 0 ppm on the stairway and upper level.

Odors

No fuel oil odors were detected.

Sampling

The second sampling round included the collection of four, 21-hour, indoor air samples. These samplers were placed in the same locations as the first round, including the basement family room, entry area, and upstairs hearth. A fourth sampler was co-located in the basement family room. The second round of sampling took place approximately two months after the installation of the radon fan. The house was heated at the time of

sampling and the radon fan continued to operate. A master bedroom window remained open for the entire sampling period.

Results

Action levels were not exceeded and all contaminant concentrations were reduced during the second round of sampling. Total petroleum hydrocarbons were not detected (detection limits ranged from 0.35 to 0.7 ppm). Generally, the basement contained the highest concentrations and the living area the lowest.

Were DEP Indoor Air Action Levels Exceeded?

Action levels were only exceeded during the first sampling round. Benzene in the basement family room and naphthalene in the basement family room and upstairs living room exceeded the chronic action levels.

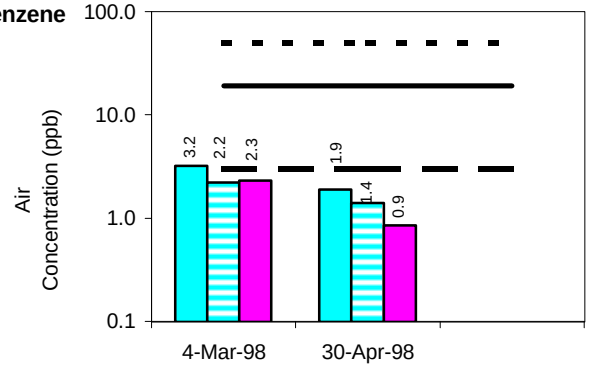
Potential for Future Indoor Air Quality Problems

Could contamination be reintroduced in the basement by future flooding events, disturbance of the basement floor, or discontinuing operation of the radon fan?

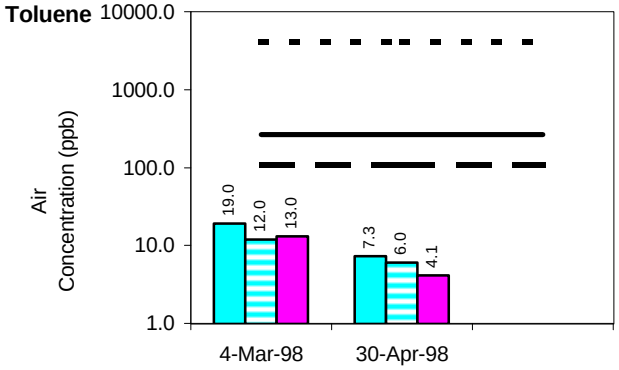
DEP Spill #: P-087-98; Cumberland Foreside
Fuel Type: No. 2 Fuel Oil
Spill Discovered: 26-Feb-98

Key: Basement, Entry Area, Living Room; Acute A.L., Subchronic A.L., Chronic A.L.

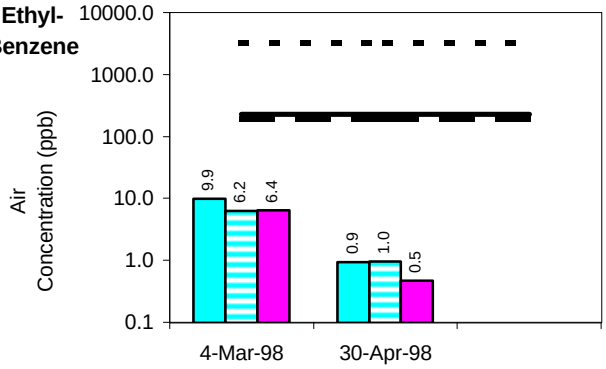
Benzene



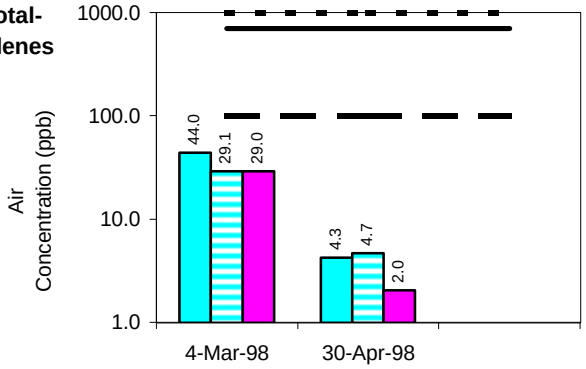
Toluene



Ethyl-Benzene



Total-Xylenes



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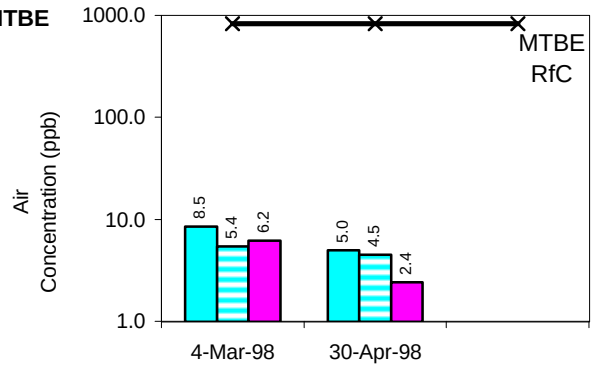
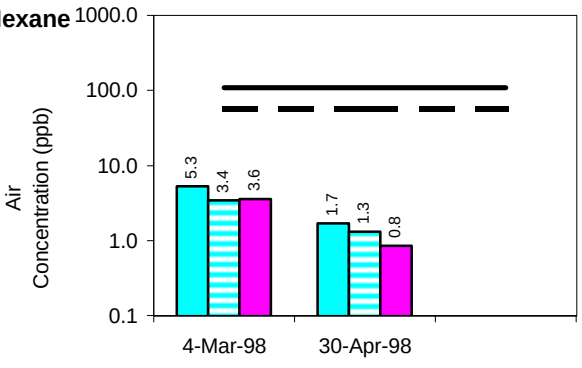


n-Hexane



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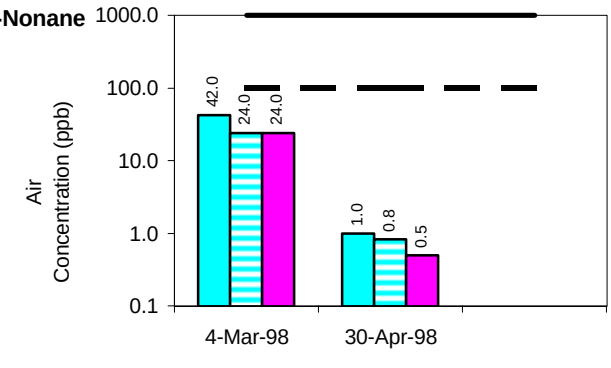
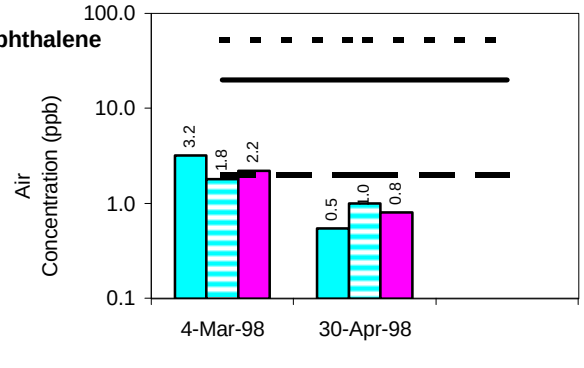


Naphthalene



Notes:

1. The basement and entry area samples were collected on the lower level of the split entry home. The living room samples were collected on the upper level of the house.
2. Dates represent the beginning of 24-hour (March 4) and 21-hour (April 30) sampling periods.
3. Remedial activities included pumping oil and water from the garage sump on February 26, 27, and March 3, 1998. Vapor extraction system installed March 6, 1998. Vent stack installed April 2, 1998.

DEP Spill #: **P-094-98**
Town: **Portland**
Fuel Type: **No. 2 Fuel Oil**
Spill Discovered: **February 23, 1998**

Spill Description

On February 23, 1998, the homeowner confirmed that the sub-slab, fuel oil line was leaking as the tank depleted prematurely. The copper line may have been leaking for up to two months since Christmas night when odors were first detected. It was estimated that approximately 100 to 200 gallons of No. 2 fuel oil spilled. Areas of the house impacted by the spill included the basement sub-slab and sump. The house is heated with a fuel oil-powered central warm-air furnace and ducts to each room. The house is insulated and tightly sealed.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

Potential indoor sources of petroleum included the oil tank in the basement as well as stored cleaners, lubricants, solvents, paint, and kerosene for a Coleman lamp. A wood stove is not used. One paint can is located in a closet on the first floor. In August, approximately 8 months prior to sampling, a bedroom on the first floor was painted. Potential outdoor sources of petroleum include an industrial park and gas stations within one-half mile of the house.

Reported Health Effects

At the time of the March 1998 sampling, residents reported various health effects experienced off and on since the spill, including runny nose, eye irritation, nausea, stomach cramps, coughing, dizziness, throat irritation, and headache. The residents were not sure if these health effects could be related to the oil spill or chronic health problems experienced by the family, including asthma and the flu. Residents reported no health effects during the April 1998 sampling.

Remediation

DEP started the investigation a week after the discovery of the spill, on March 2, 1998. During the week following the spill, remedial activities included replacing the sub-slab copper line with a new line running along the basement floor. Sorbent pads and "Speedie Dry" were used to remove oil from the sump. In addition, ash at the base of the chimney in the basement was removed because it can absorb a substantial amount of vapor phase oil. Fuel oil wicking stains were observed on the exterior mortar and brick of the chimney in the basement, which could mean that the copper line ruptured in this area. However, ash did not appear to be contaminated.

Indoor Air Sampling

March 3-4, 1998

PID Screening

Screening-level indoor air samples were collected using a PID. Readings ranged from 174 ppm at the basement sump to 1 ppm elsewhere in the basement. A PID result of 104 ppm was detected where the oil line exits the concrete floor.

Odors

DEP staff did not detect a fuel oil odor upon entering the home or in the basement at the time of sampling.

Sampling

One week after the discovery of the spill and cleanup activities, three 24-hour indoor air samples were collected at the residence. During this sampling period, the house was heated. The chimney was cleaned out days prior to the sampling period. A basement sampler was placed on a table adjacent to the sump. A basement wall separates the oil tank, furnace, and chimney from the sampling location. The sump was stuffed with sorbent pads, and a board was placed over the sump during sampling. A cast iron clean-out access and an access to the sanitary sewer backflow prevention valve are near the sampling location. A living room sampler was placed on a bench, near the basement door and within a few feet of a heat vent and cold air return to the furnace. A second-floor, bedroom sampler was placed on a table in front of the heat duct for that room.

Results

Concentrations of benzene and naphthalene exceeded chronic action levels in the basement (3.4 ppb and 2.3 ppb, respectively). TPH was not detected in any of the samples (detection limits = 0.36 to 0.75 ppm). Concentrations were highest for all compounds in the basement, followed by the first floor living area, then the second floor living area.

April 28-29,1998

PID Screening

PID readings ranged from 0 ppm upon arrival at the house to 28 ppm at the basement sump, while the pads were being changed. After the sump was closed, PID readings were 2.8 ppm followed by 1 ppm at the time of sampling. A PID reading of 0 ppm was obtained in the second floor bedroom at the time of sampling.

Odors

No fuel oil odor was evident in the house. The following day, there was a slight fuel oil odor in the basement.

Sampling

Approximately 2 months after the discovery of the spill and cleanup activities, three additional 24-hour indoor air samples were collected in the same locations as the previous sampling round, including the basement, living room, and second-floor bedroom. Prior to sampling, sorbent pads in the basement sump were removed, bagged and replaced. The pads stuffed in the pipe inlets were oil free, but the two pads stuffed in the center pit were saturated with oil. The homeowner was not sure when the pads were changed last. During this sampling period, the house was heated. Homeowners had just completed laundry prior to the start of the sampling period. In addition, water to the house was shut off for 8 hours due to nearby construction.

Results

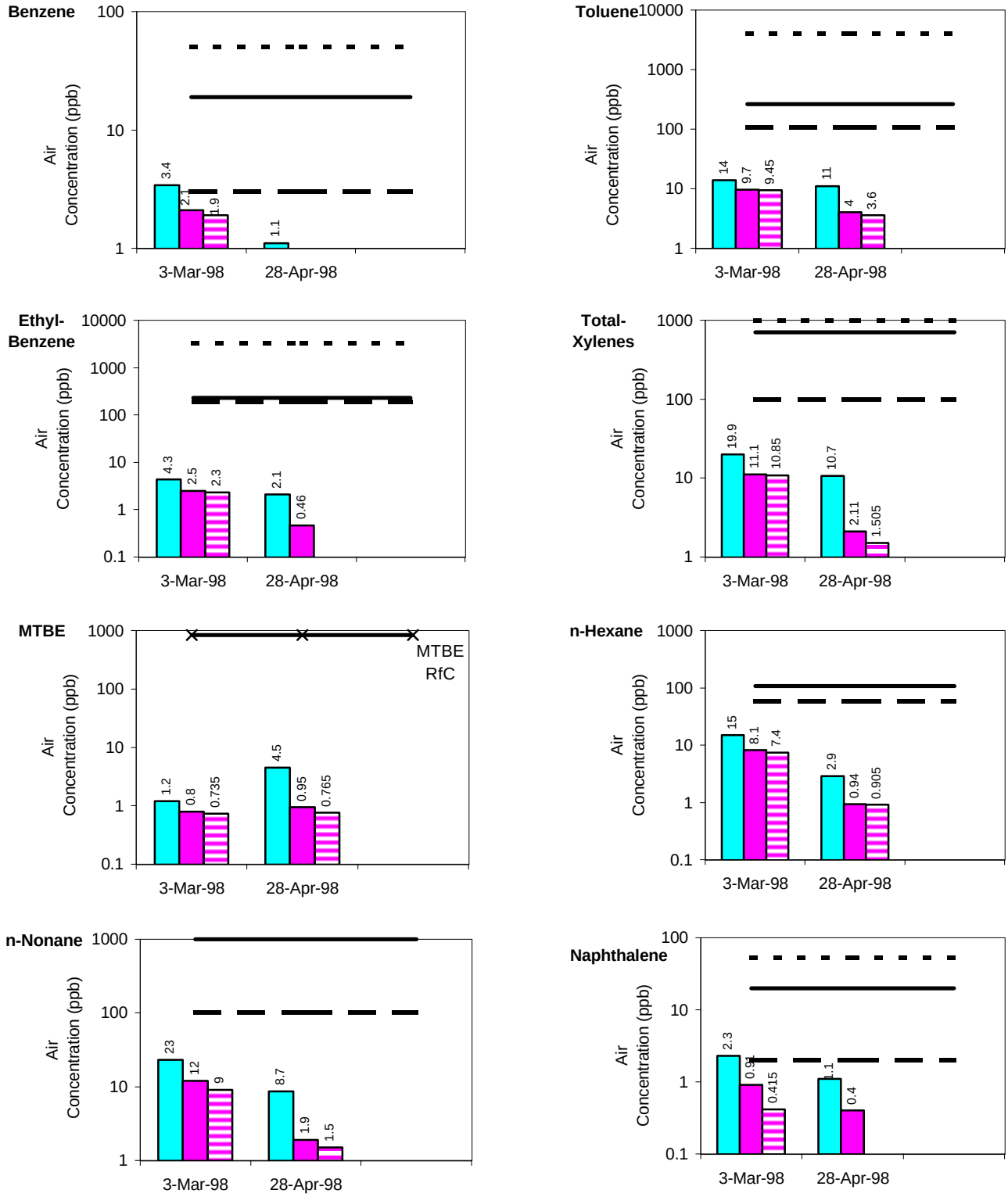
Action levels were not exceeded during the second round of sampling. TPH was not detected in any samples (detection limits = 0.35 to 0.72 ppm). As in the first sampling round, concentrations were highest for all compounds in the basement, followed by the first floor living area, then the second floor living area. Concentrations were generally the same or slightly lower than those measured in the first sampling round, except for MTBE concentrations which increased in the basement.

Were DEP Indoor Air Action Levels Exceeded?
Chronic action levels for benzene and naphthalene were exceeded during the first round of sampling.

Potential for Future Indoor Air Quality Problems
Are sorbent pads still used? Is there a chance for contamination to be reintroduced into the basement? Can the sump be sealed to prevent further migration of petroleum contamination into indoor air?

DEP Spill #: P-094-98; Portland
Fuel Type: No. 2 Fuel Oil
Spill Discovered: 23-Feb-98

Key: Basement, Living Area, 2nd Flr. Bedrm, Acute A.L., Subchronic A.L., Chronic A.L.



Notes:

1. The living area sample was collected on first floor, and the bedroom sample was collected on the second floor.
2. The dates represent the beginning of 24-hour sampling period.
3. When a bar is not present, the compound was not detected.
4. Remedial activities included using sorbent pads at the sump and cleaning out the chimney prior to the March sampling. Pads were replaced prior to the April sampling.

DEP Spill #: **A-425-97**
Town: **Augusta**
Fuel Type: **No. 2 Fuel Oil**
Spill Discovered: **October 16, 1997**

Spill Description

On October 16, 1997, the residents' fuel oil tank released its entire contents to the basement sub-slab. The spill was the result of a corroded, sub-slab copper line. The tank had been filled a couple of days before the discovery of the spill; therefore, it was estimated that approximately 350 gallons of No. 2 fuel oil was spilled. Areas of the house impacted by the spill included the basement sub-slab, sump, and perimeter drainage system.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

The only potential indoor source of petroleum that the resident noted was the oil tank in the basement. Visitors may smoke less than 10 cigarettes in the home per day. No potential outdoor sources were cited. The house has an attached garage and is situated on a moderately busy, paved street.

Reported Health Effects

Health effects experienced since the spill included eye irritation, coughing, throat irritation, and headaches. Residents complained of feeling lethargic and generally not well.

Remediation

DEP started the investigation a week after the spill, on October 23, 1997. On October 29th, remedial activities included collecting oil at the sump with sorbent pads and vactoring oil and water from the sub-slab. Sub-slab monitoring wells were installed and the vactor truck hose was attached to the wells and oil was periodically pumped out. A soapy water solution was injected below the slab to assist in mobilizing the oil. A radon fan was also installed. At the end of June 1998, the slab beneath the furnace, which was cracked, was removed. Product was vactored from this area and 0.5 yards of contaminated soil were removed. After a new floor (6-foot x 6-foot) was installed in this area, the basement floor was pressure washed and the drainage system was cleaned. There have been no recent complaints of fuel odors in the basement.

Indoor Air Sampling

October 29, 1997

Odors

Strong fuel odors were detected in the living room.

Sampling

The first sampling round included the collection of an instantaneous indoor air sample in the living room, using a Tedlar Bag. The living room sample was collected adjacent to the second floor stairway. This sample was collected two weeks after the spill, while oil was being cleaned up in the basement using sorbent pads, but before vactoring and installing the radon fan. The basement was naturally ventilated at the time of sampling. The house was heated with oil and a hot water/steam furnace.

Results

During instantaneous sampling in the living room, while oil was being cleaned up in the basement, the benzene concentration (16 ppb), toluene concentration (110 ppb), total xylenes concentration (200 ppb), and the naphthalene concentration (13 ppb) exceeded the chronic action levels. In addition, the nonane concentration (99 ppb) was just below the chronic action level of 100 ppb. Total petroleum hydrocarbons were not analyzed.

October 30-31, 1997

Odors

Fuel oil odors were not detected upon entering the house however an odor did linger in the basement.

Sampling

The second round of sampling included the collection of two, 24-hour, indoor air samples. A basement sampler was placed near the furnace, on a humidifier unit, and a living room sampler was placed in the same location as the instantaneous sample location. One, 24-hour, outdoor air sampler was placed on a chair, on the rear deck of the house. The sample location, which is enclosed by a fence, was selected due to concern over the safety of the sampler unit. During sampling, the house was heated, the radon fan was operating, and a kitchen window was open. Samples were taken after the radon fan had been in operation overnight and the oil had been cleaned up from the basement sub-slab.

Results

The naphthalene concentration detected in the basement (8.5 ppb) and living room (2.5 ppb) exceeded the chronic action level. Total petroleum hydrocarbons were not analyzed. Concentrations were highest in the basement, followed by the living room, and outside.

November 18-19, 1997

Odors

Fuel odors were not detected upon entering the house. However, according to the homeowner, there continues to be a lingering oil odor possibly due to oil trapped beneath the slab under the furnace.

Sampling

This sampling round included the collection of two, 24-hour, indoor air samples, in the basement and living room. An outdoor sample was not collected during this round. The third round of sampling took place three weeks after the oil was cleaned up from the basement sub-slab and the installation of a radon fan. The radon fan was in continuous operation prior to and during the sampling period.

Results

The naphthalene concentration detected in the basement (2.6 ppb) exceeded the chronic action level. Total petroleum hydrocarbons were not analyzed. A log form was not completed for this sampling round. The highest concentrations were detected in the basement.

Were DEP Indoor Air Action Levels Exceeded?

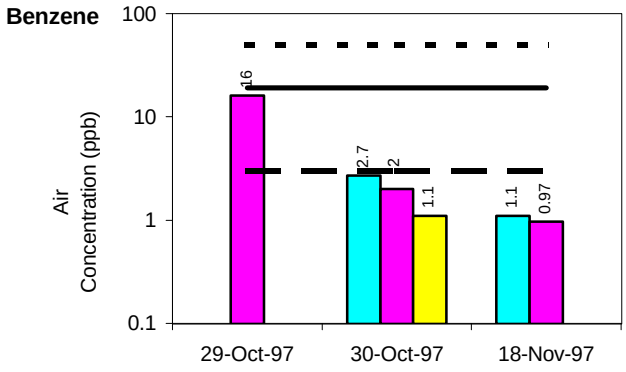
Chronic action levels were exceeded during instantaneous sampling in the living room by benzene, toluene, total xylenes, and naphthalene. Naphthalene continued to exceed the chronic action level in the basement and living room, during the second sampling round, and in the basement, during the third sampling round.

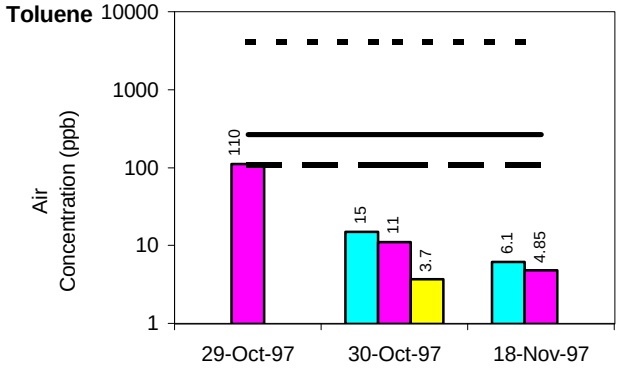
Potential for Future Indoor Air Quality Problems

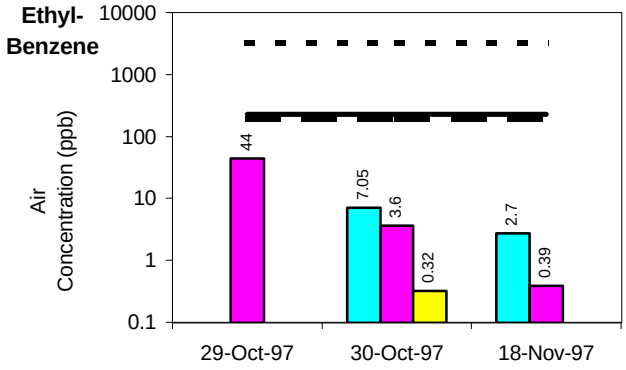
Are additional samples needed to confirm concentrations are below the action levels? Could contamination be re-introduced in the basement upon discontinuing operation of the radon fan?

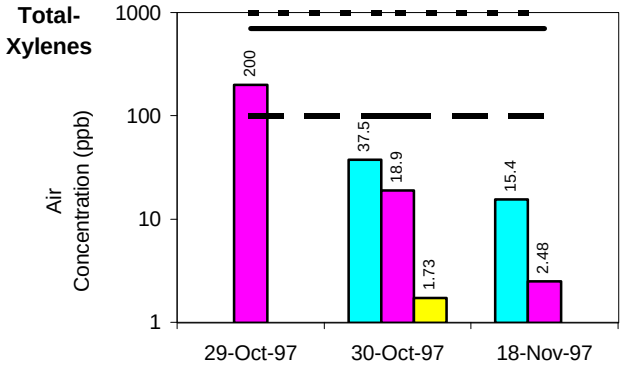
DEP Spill #: A-425-97; Augusta
Fuel Type: No. 2 Fuel Oil
Spill Discovered: 16-Oct-97

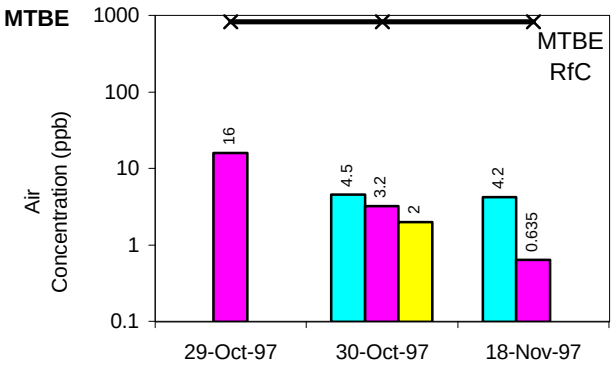
Key: Basement; Living Room; Outside; Acute A.L.; Subchronic A.L.; Chronic A.L.

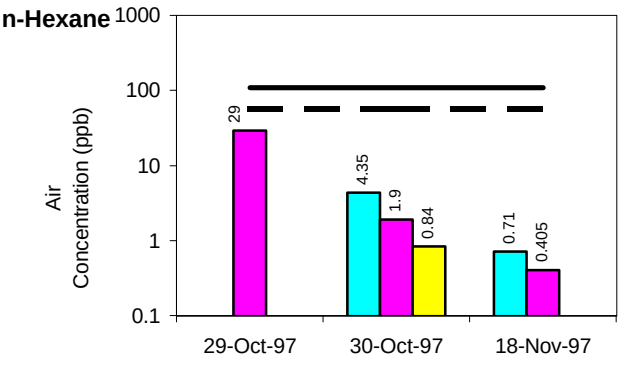


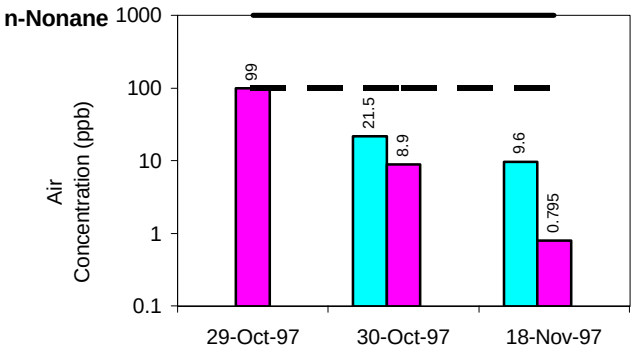


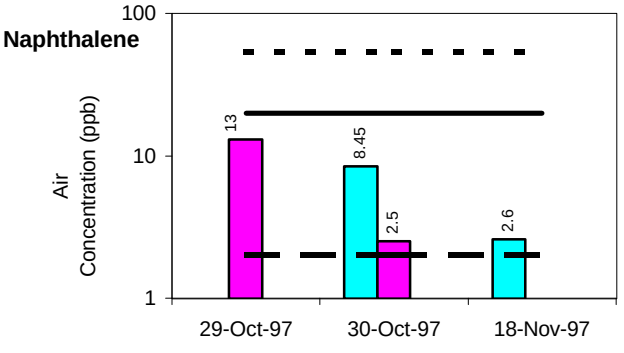












Notes:

1. The living room sample was collected on the first floor.
2. The October sampling round was an instantaneous Tedlar Grab sample in the living room only.
3. The dates represent the beginning of 24-hour sampling periods in October and November.
4. An outside sample was collected in October only. Otherwise when a bar is not present, the compound was not detected.
5. Cleanup activities were conducted during the instantaneous sampling on October 29, including vactoring oil and water and flushing the sub-slab. After sampling, a ventilation system was installed (October 29).

DEP Spill #: **A-499-97**
Town: **Hallowell**
Fuel Type: **No. 2 Fuel Oil**
Spill Discovered: **November 30, 1997**

Spill Description

On November 30, 1997 during a routine service call, an oil company technician did not properly seal the oil tank filter for a warm-air furnace located in the basement. The filter dripped over a three-day period, while the homeowners were away. Approximately 80 gallons of No. 2 fuel oil spilled onto the basement slab. Although the slab had visible cracks, which may have allowed oil to migrate beneath the slab, the majority of the oil was carried along with water in the basement via the drainage system to the sump. The sump discharged most of the oil and water to the backyard. Areas of the house impacted by the spill included the basement slab, drainage system, sump, and backyard.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

Potential indoor sources of petroleum included paint cans, two oil tanks, and a kerosene heater used during a January power outage. All of these potential sources were located in the basement. New carpets were installed on the second floor around the time of the spill. The house has an attached garage and is located on a busy street.

Reported Health Effects

Residents experienced headaches following the spill, but did not experience health effects during DEP's investigation. Residents commented on allergies and respiratory concerns.

Remediation

Cleanup activities occurred over the course of several weeks, prior to DEP visiting the home. Sorbent pads were placed in the sump to recover the oil, and later a monitoring well was installed in the basement slab to aid in the spill recovery. DEP visited the residence on December 23, 1997. Although DEP staff could not smell oil, a radon fan was installed due to homeowners' complaints of fuel oil odors. In addition, a product called "Odorgone" was used in the basement, which contains hexylene glycol and alcohol.

Indoor Air Sampling

December 23-24, 1997

Odors

Although the homeowner complained of a fuel oil odor, DEP staff did not detect any petroleum odor during visits to the home.

Sampling

The first round of sampling took place after several weeks of remediation in the basement and the installation of a radon fan. Three 24-hour indoor air samples and one 24-hour outdoor air sample were collected. One sampler was placed in the basement near the sump pump, one-foot off the floor. A second sampler was placed in the same area to provide a field duplicate. A third

sampler was placed in the living room, adjacent to the roadside window, 16 inches off the floor. Because space was limited in the living room, the sampler had to be placed within 3 feet of a cold-air return duct for the furnace. The fourth sampler was placed on the back porch railing. This location is upwind of where oil was discharged to the yard, and away from both the radon fan exhaust and the road. During the sampling period, 4 inches of snow fell, the central warm-air furnace was used, and the radon fan was operating.

Results

Concentrations of all compounds, except *n*-nonane and naphthalene, were highest in the living room, followed by the basement. The lowest concentrations for all compounds were detected outside. This result suggests that the basement is not an important source for most compounds, at least while the basement is ventilated. However, comparisons of basement and living room concentration data are complicated by operation of the radon fan and the proximity of the living room sampler to a window and return duct. All samples were non-detect for TPH (detection limits ranged from 0.37 to 0.72 ppm).

February 11-12, 1998

Odors

Slight odors, which were not clearly petroleum odors, were detected.

Sampling

In January, during an extended power outage resulting from an ice storm, the basement flooded while a small amount of dissolved petroleum was still present in the groundwater. A kerosene heater was used during the power outage. Sampling began 2 months after remediation and following reintroduction of contamination into the basement during the January power outage. During the sampling period, the house was heated and the radon fan was operating. The kerosene heater used during the power outage was located in the basement but was not operating. Three 24-hour indoor air samples and one 24-hour outdoor air sample were collected at the residence. Three of the samplers were placed in the same locations as the first round, including the basement, living room, and outside. A fourth sampler was placed in the dining room, near sliding glass doors leading to the back deck. This sample location is on the opposite side of the house relative to the living room sample and was added to determine if the living room sample could have been affected by an outdoor source, such as the busy road.

Results

All compound concentrations were somewhat higher in this second round of sampling. With the exception of *n*-nonane and naphthalene, the highest concentrations were measured in the dining room, followed by the living room, basement, and outside. All samples were non-detect for TPH (detection limits ranged from 0.34 to 0.7 ppm). Based on the data, a source unrelated to the spill appears to be present in the living area of the home. The dining room sample, collected near sliding glass doors leading to the back deck, had the highest concentrations.

Were DEP Indoor Air Action Levels Exceeded?

In both the December 1997 and February 1998 sampling rounds, action levels were not exceeded. All samples were collected following the bulk of remediation efforts; therefore, it is not known whether action levels were exceeded during the spill or any other time prior to remediation.

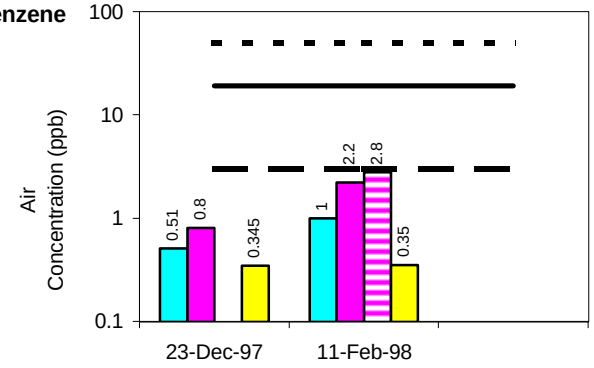
Potential for Future Indoor Air Quality Problems

Could contamination be reintroduced by future flooding events, disturbance of the basement floor (e.g., during construction or renovation work), or discontinuing operation of the radon fan? Are additional samples needed to identify the source of indoor air quality problems in the living area of the home?

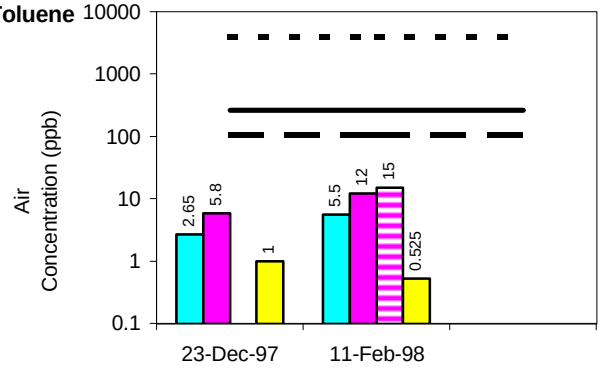
DEP Spill #: A-499-97; Hallowell
Fuel Type: No. 2 Fuel Oil
Spill Discovered: 30-Nov-97

Key:
Basement
Living Room
Dining Room
Outside
Acute A.L.
Subchronic A.L.
Chronic A.L.

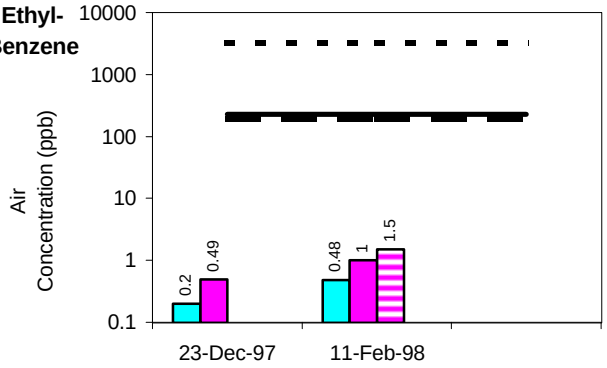
Benzene



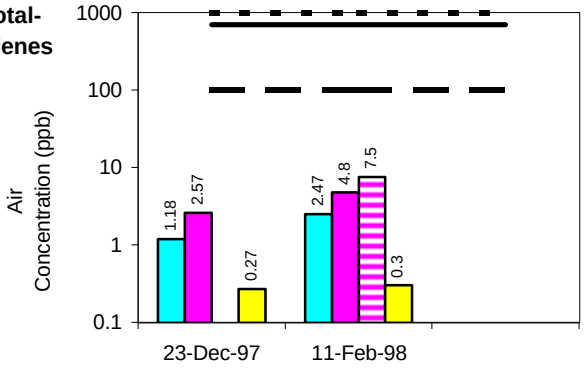
Toluene



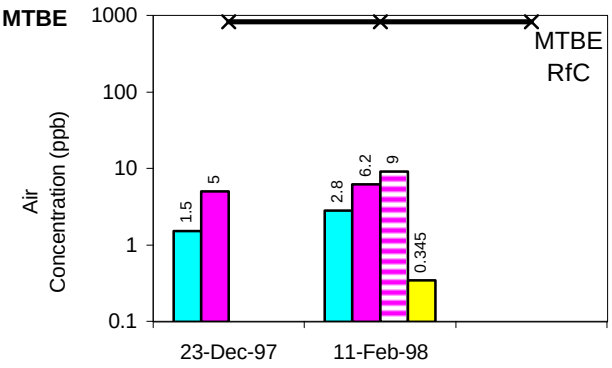
Ethyl-Benzene



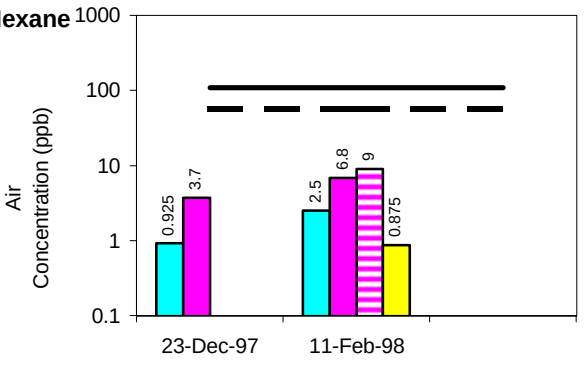
Total-Xylenes



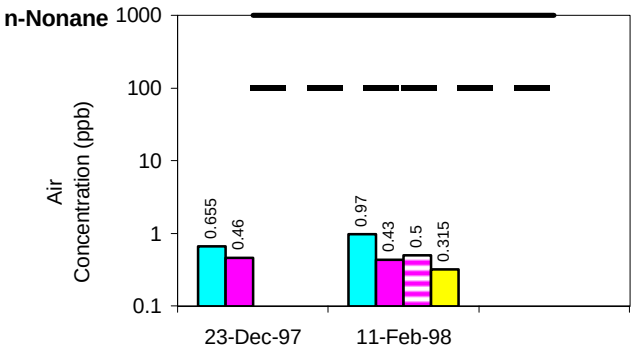
MTBE



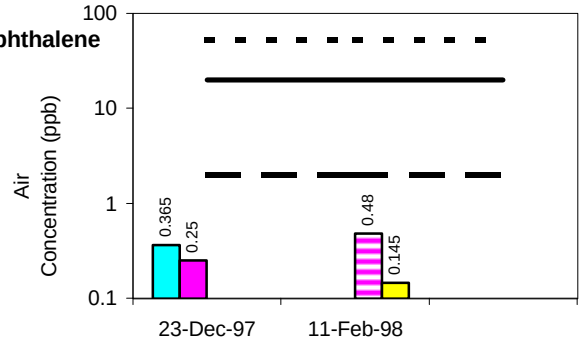
n-Hexane



n-Nonane



Naphthalene



Notes:

1. Living room and dining room samples were collected on first floor.
2. The dates represent the beginning of 24-hour sampling periods.
3. No dining room sample was collected in December. Otherwise, when a bar is not present, the compound was not detected.
4. Remedial activities prior to December sampling included using sorbent pads, pumping from a sub-slab monitoring well, and installing a radon fan.

DEP Spill #: **P-622-97**
Town: **Windham**
Fuel Type: **No. 2 Fuel Oil**
Spill Discovered: **November 3, 1997**

Spill Description

On November 3, 1997, an oil company service technician doing routine service discovered a leak caused by a rusted seam on the oil tank located in the basement. The leak was fixed and based on a recent delivery, it was estimated that approximately 45 gallons of No. 2 fuel oil was spilled in the basement. The tank was not leaking for more than a couple of days as the homeowner was in the basement a few days prior to the discovery of the spill. Areas of the house impacted by the spill included the dirt floor of the basement, comprised of sandy soil. The house is heated with a central warm air furnace, located in the basement, with ducts to each room. The furnace draws air from the first floor. The residence has a 40-foot, driven point well, not considered by DEP to be threatened.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

Potential indoor sources of petroleum included mothballs located upstairs and two oil tanks in the basement. The furnace draws air from the first floor. A kerosene heater was used for eight days (January 8-15) between the first and second sampling periods, as a secondary source of heat during a winter storm. Two residents smoke regularly inside the home, averaging approximately 2 packs per day. Visitors also smoke inside the home. Prior to the third sampling round, the living room ceiling was painted with latex paint.

Reported Health Effects

Health effects experienced by residents since the time of the spill and during the first sampling round include runny nose, eye irritation, and throat irritation. Residents commented that they could taste the oil. During the February sampling period, the residents complained of a cold and a stuffy nose. Residents were smoking more as a result of the spill and January storm. Health effects were not reported during the May sampling round.

Remediation

DEP started the investigation two days after the discovery of the spill, on November 5, 1997. The next day, approximately 4 cubic yards of sandy soil were excavated from the basement floor. As much of the contaminated soil as possible was vactored from the basement floor without causing structural damage; however, contamination was left behind.

Indoor Air Sampling

November 5-6, 1997

PID Screening

Screening indoor air samples using a PID showed 30 ppm in ambient air in the basement and a range of 32 ppm to 359 ppm in soil in the spill area.

Odors

A strong fuel oil odor was present upon entering the house.

Sampling

The first sampling round included the collection of two, 18-hour, indoor air samples. One, 18-hour, outdoor air sample was also collected in the backyard. A basement sampler was placed on the dirt floor; adjacent to the oil discharge area and two, side by side oil tanks. A bulkhead was in the vicinity of the sample location. A first floor, living room sampler was placed on a hope chest approximately 2-feet off the floor. The backyard sampler was placed in a central, grassy area with dead leaves. During the sampling period the house was heated by central warm air and residents smoked approximately one pack of cigarettes. The first round of sampling took place prior to the excavation of oil contaminated soil from the basement floor.

Results

During the first round of sampling, prior to any remediation, the benzene concentration detected in the basement and upstairs living room (8.4 ppb) exceeded the chronic action level. The total xylenes concentration detected in the basement (120 ppb) and upstairs living room (105 ppb) exceeded the chronic action level. Naphthalene concentrations detected in the basement (7.9 ppb) and upstairs living room (5.5 ppb) exceeded the chronic action level. Total petroleum hydrocarbons were not analyzed. Contaminant concentrations were similarly elevated in the basement and living room samples.

February 5-6, 1998

Odors

Fuel odors were detected on the back patio and in the basement.

Sampling

The second round of sampling included the collection of three, 24-hour, air samples, in the same locations as the first round, including the basement, living room, and backyard. The basement sampler was placed on a pile of lumber. The house was heated during sampling and residents smoked approximately 2 packs of cigarettes. An open bucket containing 2 gallons of fuel oil was removed from the basement prior to sampling. The second round of sampling took place three months after the excavation of basement soils.

Results

Action levels were not exceeded during the second round of sampling. Total petroleum hydrocarbons were not detected (detection limits ranged from 0.35 to 0.72 ppm). Contaminant concentrations were lower for all compounds compared to the first round; however, concentrations in the living room were similar to or higher than concentrations in the basement.

May 6-7, 1998

Odors

No noticeable fuel odors were detected.

Sampling

The third sampling round included the collection of three, 24 hour, air samples, in the same locations as the first and second rounds, including the basement, living room, and backyard. The basement sampler was placed on a pile of lumber. The house was heated during sampling and residents smoked approximately one pack of cigarettes. The final round of sampling took place six months after the excavation of basement soils.

Results

Action levels were not exceeded and total petroleum hydrocarbons were not detected (detection limits ranged from 0.34 to 0.35 ppm). A water sample was analyzed for diesel range organics, but results were not available. With the exception of MTBE, living room concentrations were higher than basement concentrations, and the levels for all compounds exceeded levels detected during the second round of sampling. Elevated concentrations detected in May might be associated with increased temperatures relative to the February sampling round. In addition, the living room ceiling was painted with latex paint prior to the third sampling round. Some indoor air concentrations, specifically naphthalene, may be attributed to cigarette smoke.

Were DEP Indoor Air Action Levels Exceeded?

Action levels were only exceeded during the first round of sampling. Benzene, total xylenes and naphthalene exceeded the chronic action levels in both the basement and living area.

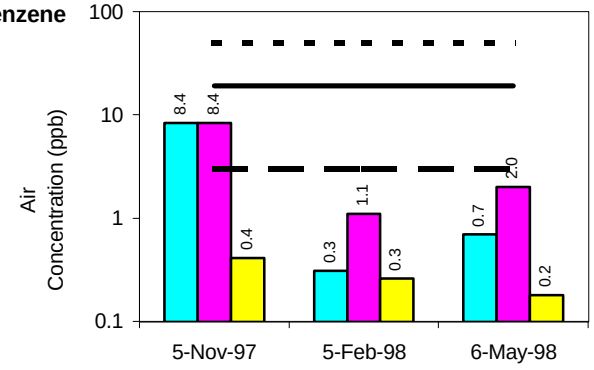
Potential for Future Indoor Air Quality Problems

What was the extent of the contamination left behind? The basement does not appear to be the source of elevated concentrations detected in the third sampling round. Latex paint and smoking activity within the home may be the source of elevated living area contaminant concentrations.

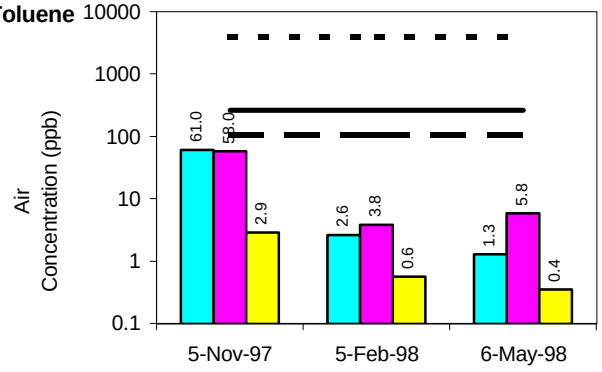
DEP Spill #: P-622-97; Windham
Fuel Type: No. 2 Fuel Oil
Spill Discovered: 3-Nov-97

Key: Basement; Living Room; Outside; Acute A.L.; Subchronic A.L.; Chronic A.L.

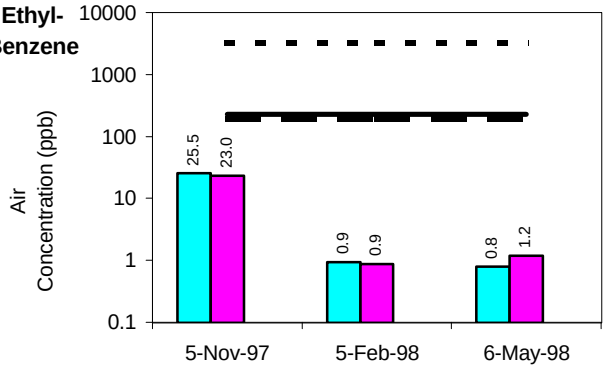
Benzene



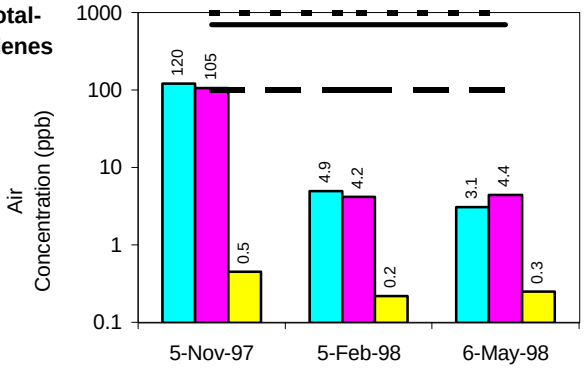
Toluene



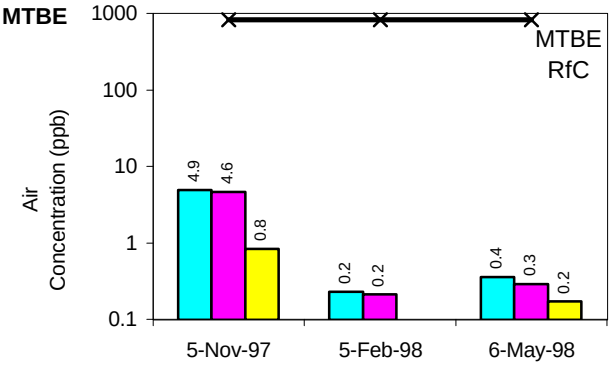
Ethyl-Benzene



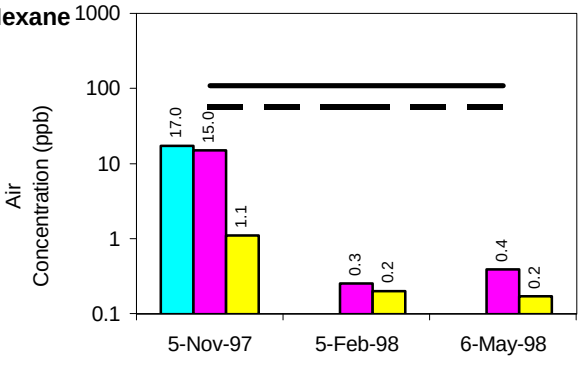
Total-Xylenes



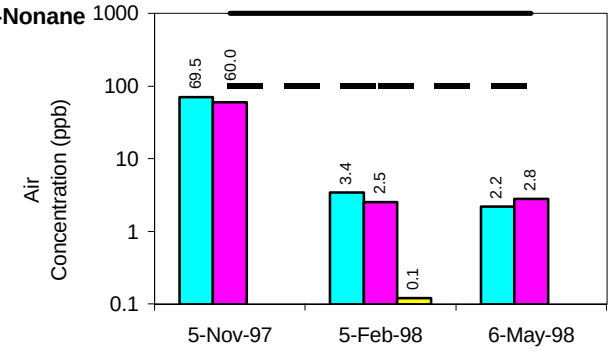
MTBE



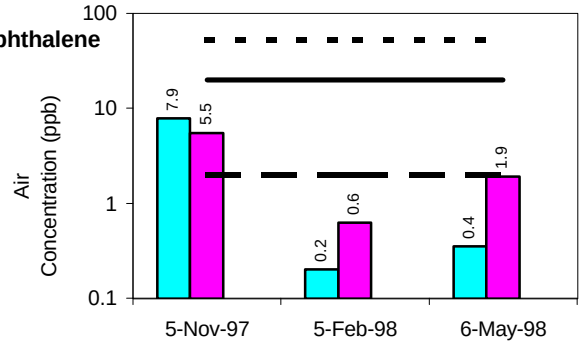
n-Hexane



n-Nonane



Naphthalene



Notes:

1. The living room sample was collected on the first floor.
2. The dates represent the beginning of 18-hour (November 5) and subsequent 24-hour sampling periods.
3. When a bar is not present, the compound was not detected.
4. Remedial activities included the excavation of 4-cubic yards of sandy soil from the dirt floor in the basement on November 6, 1997.

DEP Spill #: **P-636-97**
Town: **Groveville**
Fuel Type: **No. 2 Fuel Oil**
Spill Discovered: **November 2, 1997**

Spill Description

On November 2, 1997, the homeowner discovered a fuel oil spill as the rising groundwater table carried oil into the basement sump and several wet, low spots in the sand floor of the basement. A full basement is beneath the first floor bedroom, while several additions have crawl spaces. The basement floor is finished with concrete to the west and a sand floor to the east. A sump pump operates in the sand floor to keep groundwater out of the basement, which discharges onto the lawn behind the residence. The fuel oil release was attributed to a corroded copper line that ran beneath the sand floor in the basement. An estimated 50 to 100 gallons of No. 2 fuel oil were released. The leak began sometime after June 1997, since it became evident when the water table rose. Oil was observed throughout the sand floor and in an area behind a brick wall in the basement. The copper line was replaced the same day.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

Several potential sources of petroleum were located in the attached garage, including 2 generators with gasoline, 5 empty gas containers, 2 lawn mowers and an old stove. Potential indoor sources included the oil tank in the basement, which had small leaks evident in May, and an adhesive floor covering. A Gojo hand cleaner was also in the house for approximately one week. Residents also cook with a gas stove. Potential outdoor sources include a gas station and an abandoned gas station with groundwater contamination. The house is situated on a busy paved street. Dump trucks frequently pass by the residence because of several gravel pits in the area.

Reported Health Effects

Health effects reported since the time of the spill include lightheadedness, runny nose and coughing; however, these symptoms may be due to a cold. Sensitive residents moved out of the house. Health assessment reports were not completed for all sampling rounds.

Remediation

DEP started the response-phase of the investigation on November 7, 1997, five days after the discovery of the spill. Stringent Clean-up Goals were determined based on the DEP Hydrocarbon Spill Decision Tree. The residents' dug well was considered to be at risk of contamination and is being monitored by DEP. On November 7th, Seacoast Ocean Services (SOS) vactored LNAPL, soil and groundwater from the basement. To minimize oil discharging to the ground surface, LNAPL was contained using sorbent pads and a stilling basin at the sump pump discharge. As vactored sand was replaced with new sand, several depressions were made to allow fuel oil to

collect. Two tons of sandy soil were removed, exposing a product layer on the groundwater surface. Oil was skimmed off the groundwater surface with the vactor. Three days later, SOS returned to vactor soil and groundwater from the basement, as heavy rains over the weekend brought product back into the basement. The following week, SOS again vactored oil and water from the basement attempting to depress the water table further in order to mobilize additional product. On November 21st, SOS vactored product and soil so that a deep sump, perforated PVC drain lines, pea stone backfill, and vapor barrier could be installed. This recovery/remediation system was designed to create a central location for product recovery and prevent vapors from entering the building space. Three days later, on November 24th, product was continuing to collect in the sump. A radon fan was attached to the sump and fan exhaust was piped above the roofline. As of March, fuel oil being recovered from the sump had diminished to less than 0.1 gallons per day and heavy rains had not influenced product recovery.

Indoor Air Sampling

November 21, 1997

PID Screening

Screening level PID readings ranged from 4 to 6 ppm in the living space and 34 to 36 ppm in the basement.

Odors

Fuel odors were detected upon entering the home.

Sampling

The first sampling round included the collection of two, 4-hour, indoor air samples and one 4-hour outdoor sample. A basement sampler was placed one-foot off the floor, behind a brick wall, which abuts the brick chimney, in the southwest corner. A living area sampler was placed on a half wall between the kitchen and living room, centrally located on the first floor. An outside sampler was placed on the top of the concrete well tile, east of the house. During sampling, the house was heated by oil and a hot water furnace. The radon fan was operational. Samples were collected after oil, sand, and water were vactored from the basement and the deep sump and vapor barrier were installed. These activities immediately prior to sampling may have stirred up vapors in ambient air.

Results

During the first round of sampling, after the installation of the recovery/remediation system, benzene concentrations in the basement (18 ppb) and living space (9.4 ppb) exceeded the chronic action level. Naphthalene concentrations in the basement (5.3 ppb) and living space (2.7 ppb) exceeded the chronic action level. In addition, the hexane concentration in the basement (96 ppb) exceeded the chronic action level. Total petroleum hydrocarbons ranged from a trace concentration (0.39 ppm) in the living space to 0.64 ppm in the basement. TPH resembled the early portion of a diesel pattern. The basement concentration levels were the highest, followed by the living area, and outside.

December 4-5, 1997

Odors

Fuel odors were detected in the basement.

Sampling

A second round of sampling included the collection of two, 24-hour, indoor air samples. One 24-hour, outdoor sample was also collected at the residence. Samplers were placed in the same locations as the previous sampling event: one in the basement, one in the living area and one outdoors. The house was heated during sampling and cooked bacon odors were present at the beginning of the sampling period. These samples were collected almost two weeks after the installation of the radon fan. The radon fan was operational. Pads at the sump discharge were wet, but there was no oil. The homeowner noted that fuel oil was being recovered from the sump at a rate of 3 saturated pads or 1.5 gallons per day.

Results

The benzene concentration in the basement (3.2 ppb) exceeded the chronic action level and was at the chronic action level in the living space. Total petroleum hydrocarbons were non-detect (detection limits ranged from 0.36 to 0.77 ppm). Generally, basement and living area samples were similar in concentrations and were lower than levels previously detected.

February 24-25, 1998

PID Screening

PID samples were less than 1 ppm throughout the house, including the basement.

Odors

A slight musty fuel oil odor was detected in the basement, but the residents were not complaining of any odors.

Sampling

A third round of sampling included the collection of three, 24-hour, indoor air samples and one, 24-hour, outdoor sample. Samplers were placed in the same locations as the previous two sampling events. A second sampler placed in the basement served as a field duplicate. Oil stains were evident behind the brick wall in the basement. The house was heated during sampling and Glade bathroom spray may have been used. Guests smoked cigarettes in a first floor bedroom two days prior to the sampling period. These samples were collected approximately three months after the installation of the radon fan. The radon fan was operational.

Results

Benzene concentrations increased in the house relative to the last sampling round. Benzene concentrations in the basement (6.7 ppb) and living space (5.9 ppb) exceeded the chronic action level. Total petroleum hydrocarbons were non-detect (detection limits ranged from 0.35 to 0.7 ppm). Basement and living area concentrations were higher than December levels for all compounds, except *n*-nonane and naphthalene.

April 28-29, 1998

Odors

Fuel oil odors were not detected upon entering the house, but odors were present in the basement behind the brick wall where the sampler was placed.

Sampling

A fourth round of sampling included the collection of three, 24-hour, indoor air samples. A basement and living area sampler were placed in the same locations as the previous three sampling rounds. A third sampler was placed in the first floor hallway, 4-feet off the floor, on a desk. This location was chosen to see if elevated concentrations detected in the last sampling round were similar throughout the first floor. During the sampling period, the house was heated and recent renovations included removing a back deck to replace a sill. The radon fan was operational. Cigarettes were smoked in a first floor bedroom at least one day prior to the sampling period. Three week old pads in the sump were only mildly contaminated, but an oil sheen was still evident at the sump pump discharge. An aqueous sump pump discharge sample was analyzed for diesel range organics. These samples were collected approximately five months after the installation of the radon fan.

Results

Benzene levels in the living area exceeded benzene levels in the basement. Benzene concentrations in the basement (5.1 ppb), living space (6.9 ppb), and the hallway (4.9 ppb) exceeded the chronic action level. Total petroleum hydrocarbons were non-detect (detection limits ranged from 0.35 to 0.37 ppm). The sump pump discharge contained 3.5 mg/L diesel range organics. Contaminant concentrations remained similar to previously detected levels.

May 19-20, 1998

PID Screening

An empty gas container in the garage had a PID reading of 14 ppm. One area of the ground in the garage had Speedie Dry on it and a PID reading of 16 ppm.

Odors

A slight oil smell was detected in the basement.

Sampling

A fifth round of sampling included the collection of four, 24-hour, indoor air samples. The basement and living area samplers were placed in the same locations as the last four sampling rounds. A third sampler was placed in the attached garage, on the second step to the attic. A fourth sampler was placed in the attached garage, behind a tractor, in the center of the floor. Garage samples were collected to identify potential secondary sources of petroleum vapors in the house. Cracks were evident in the wall between the garage and the kitchen. A water sample from the kitchen faucet was collected for analysis of petroleum compounds. The furnace was not operating during sampling and the radon fan continued to operate. These samples were collected approximately six months after the installation of the radon fan.

Results

Benzene levels remain elevated within the living space of the house; however, a secondary source of petroleum vapors appears to be located in the garage. Benzene

concentrations in the garage ranged from 19 ppb on the steps to the attic to 35 ppb on the floor, behind the tractor. These concentrations are at and exceed the subchronic action level, respectively. The benzene concentration in the living space (6.2 ppb) exceeded the chronic action level. Four other compounds in the garage floor sample exceeded chronic action levels, including hexane at 76 ppb, toluene at 160 ppb, total xylenes at 137 ppb, and naphthalene at 2.1 ppb. Action levels were not exceeded in the basement during this sampling round. Total petroleum hydrocarbons were non-detect (detection limits ranged from 0.35 to 0.72 ppm). Petroleum compounds were also non-detect in the kitchen water sample.

Were DEP Indoor Air Quality Action Levels Exceeded?

Benzene concentrations in the living area exceeded the chronic action level in all sampling rounds and exceeded the chronic action level in the basement in all but the last sampling round. During the first sampling round, naphthalene in the basement and living area and hexane in the basement exceeded the chronic action levels. Benzene exceeded the sub-chronic action level in the garage in May. Chronic action levels were also exceeded for toluene, total xylenes, hexane and naphthalene in the garage, in May.

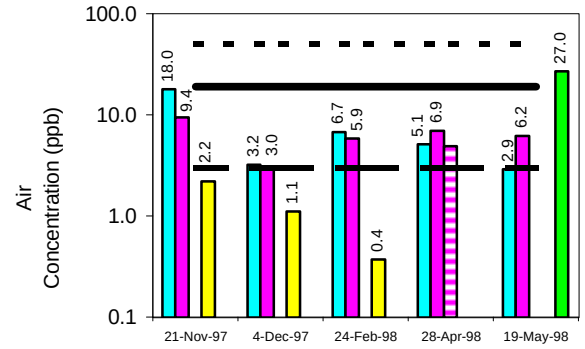
Potential for Future Indoor Air Quality Problems

Given the additional petroleum sources in the garage and the elevated contaminant concentrations, the garage appears to be a current source of petroleum vapors in indoor air. If sources of petroleum remain in the garage, the garage will likely continue to be a future source of indoor air quality problems.

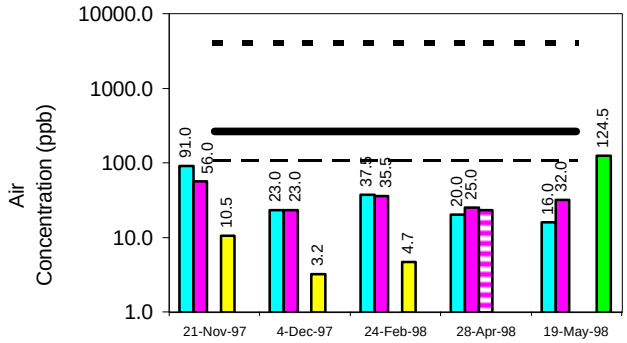
DEP Spill #: P-636-97; Groveville
Fuel Type: No. 2 Fuel Oil
Spill Discovered: 2-Nov-97

Key: Basement, Living Area, Hallway, Outside, Garage, Acute A.L., Subchronic A.L., Chronic A.L.

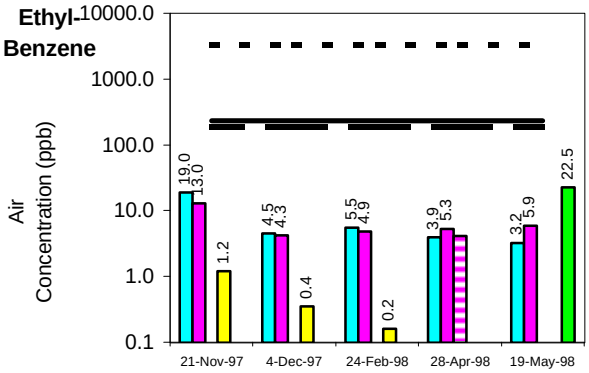
Benzene



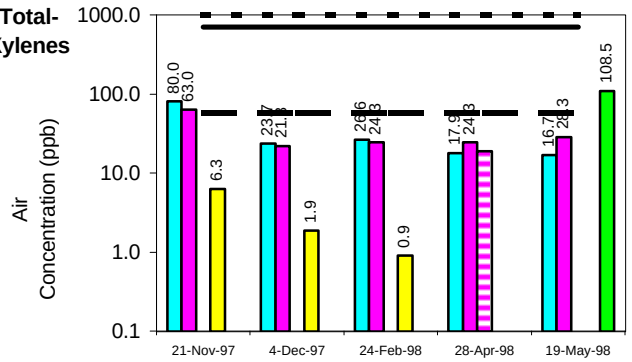
Toluene



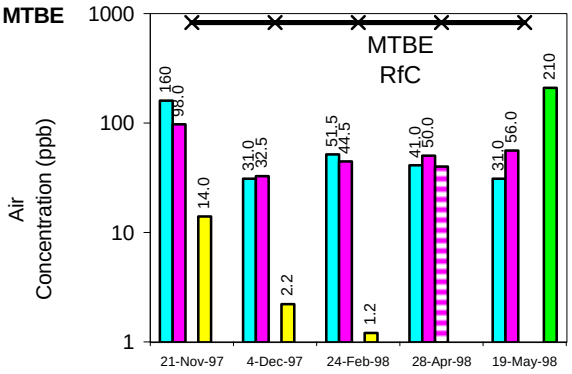
Ethyl-Benzene



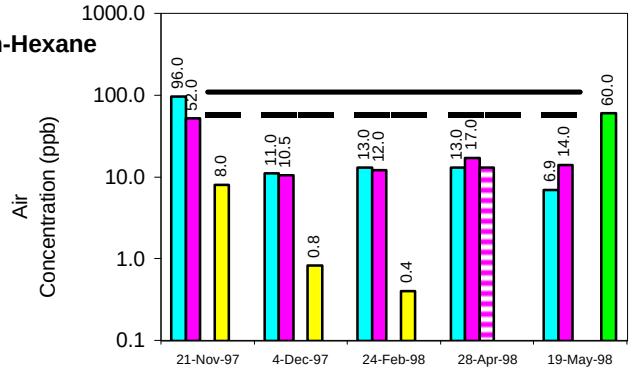
Total-Xylenes



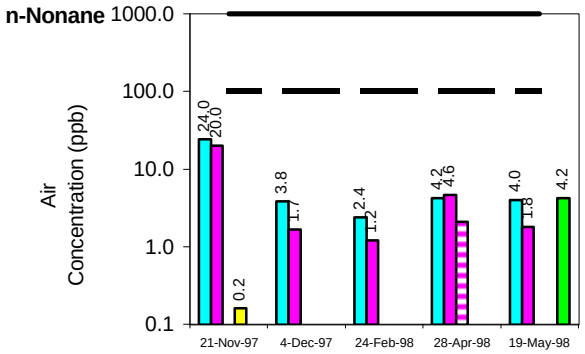
MTBE



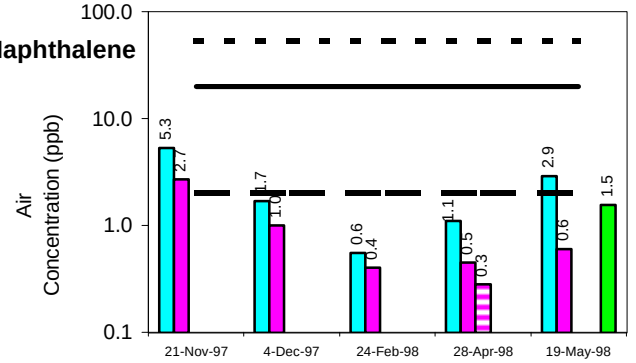
n-Hexane



n-Nonane



Naphthalene



Notes:

1. The living area samples and the hallway sample were collected on the first floor.
2. The concentrations in the garage represent the average of two samples.
3. The dates represent the beginning of 4-hour (November 21) and subsequent 24-hour sampling periods.
4. Outside samples were not collected in April and May. A hallway sample was collected in April only. Garage samples were collected in May only. Otherwise, when a bar is not present, the compound was not detected.
5. The remedial activities (November 7-21) included vactoring soil and water from the basement, installing a deep sump and vapor barrier, and backfilling

prior to November sampling. A ventilation fan activated November 24, 1997.

DEP Spill #: **P-639-97**
Town: **Minot**
Fuel Type: **No. 2 Fuel Oil**
Spill Discovered: **November 10, 1997**

Spill Description

On November 10, 1997, the homeowner discovered a substantial amount of oil in the swamp behind the house. It was determined that the copper line under the basement concrete floor leaked, and fuel oil penetrated the foundation drainage system, which empties into the swamp. The period over which fuel oil was released is not known. It was estimated that approximately 250 gallons of No. 2 fuel oil spilled. Areas of the house impacted by the spill included the basement sub-slab, sump, and drainage system. The fouled drain lines were found to contain iron bacteria, which can inhibit the flow of water and vapors.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

Potential indoor sources of petroleum included the oil tank in the basement. An existing wood stove is rarely used. Air cleaning devices in the house include a HEPA filter. Air conditioning in the kitchen is used 2 to 3 times a year.

Reported Health Effects

Health effects experienced since the spill include runny nose, coughing, congestion, throat irritation, and headache, with symptoms reoccurring every two weeks since the spill event. However, the homeowner is not sure if these symptoms are related to the spill or the flu season. During sampling on November 19th, DEP personnel noted irritated eyes and throat after approximately thirty minutes in the home.

Remediation

DEP started the investigation a week after the spill, on November 17, 1997. The day before, Clean Harbors pumped out the swamp and floor drains. On November 19th, a radon fan was connected to the basement sump to mitigate fuel oil odors impacting the living area of the house. Following the spill, oil was removed from the backyard as it appeared after rain events.

Indoor Air Sampling

November 19, 1997

PID Screening

PID readings were 6.8 ppm in the first floor living space and 17 to 31 ppm in the basement. Immediately after activating the radon fan, PID readings were reduced to zero in the living area and 4.1 to 6.8 ppm in the basement.

Odors

Fuel oil odors in the house were very strong and unpleasant. DEP personnel noted that odors permeated clothing after approximately thirty minutes in the home.

Sampling

The first sampling round included collection of three instantaneous indoor air samples using Tedlar Bags. Samples were collected in the basement, kitchen/living area, and hallway, outside the bedrooms. The house is a one-story, ranch style home. These samples were collected during the installation of a radon fan and after oil had been pumped from the drainage system. A data log was not completed for this sampling round.

Results

Concentrations of benzene and total xylenes exceeded action levels in all three sampling locations. The benzene concentration detected in the basement (19 ppb) was at the subchronic action level, while concentrations in the kitchen/living area (10.3 ppb) and the hallway (9.1 ppb) exceeded the chronic action level. The total xylenes concentrations in the basement (340 ppb), kitchen/living area (154 ppb), and hallway (130 ppb) exceeded the chronic action level. In addition, the basement concentration of hexane (57 ppb) was at the chronic action level, while toluene (180 ppb) and nonane (160 ppb) exceeded the chronic action levels. Samples were not analyzed for TPH. Concentrations were highest in the basement, followed by the living area, and hallway.

December 17-18, 1997

PID Screening

PID readings were zero.

Odors

No fuel oil odor was evident in the house.

Sampling

Three 24-hour indoor air samples were collected in the basement, kitchen/living area, and hallway. The basement sampler was placed on a box, adjacent to the oil tank and radon fan. The kitchen, living room, and dining room comprise one big open area. A kitchen/living area sampler was placed on a chair in the center of this open area. A hallway sampler was placed on a chest outside the bedrooms, at the opposite end of the house from the kitchen/living area sampler. During this sampling period, the house was heated and the radon fan was operating. The radon fan was operating for approximately one month prior to sampling.

Results

Action levels were not exceeded during the second round of sampling. TPH was not detected in any samples (detection limits ranged from 0.77 ppm to 1.9 ppm). Concentrations were highest in the basement, but were all reduced relative to the first sampling round.

March 12-13, 1998

PID Screening

PID readings were zero.

Odors

No fuel oil odor was evident in the house.

Sampling

This sampling round included the collection of three 24-hour indoor air samples in the same locations as the previous sampling round, including the basement, kitchen/living area, and hallway. The radon fan was operating for approximately four months prior to sampling. During the sampling period, the house was heated and the radon fan was running. Ammonia and water were used to clean in the kitchen during sampling.

Results

Action levels were not exceeded during the third round of sampling. TPH was not detected in any samples (detection limits ranged from 0.39 ppm to 0.42 ppm). Concentrations of benzene and toluene were highest in the living area and hallway.

Were DEP Indoor Air Action Levels Exceeded?

Action levels were only exceeded during the first sampling round. Concentrations of benzene and total xylenes exceeded chronic action levels in all three sampling locations, including the subchronic action level for benzene in the basement. In addition, the basement concentration of hexane was at the chronic action level, while toluene and nonane exceeded the chronic action levels.

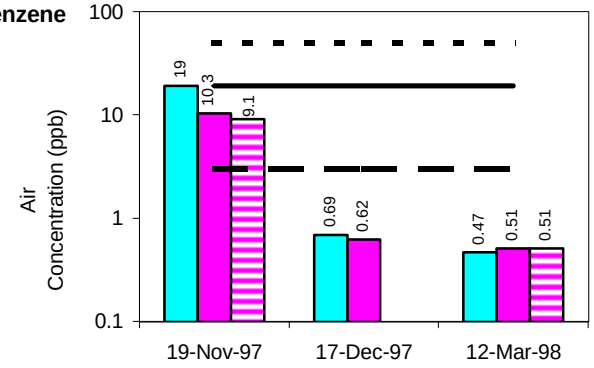
Potential for Future Indoor Air Quality Problems

Could contamination be re-introduced upon disturbance of the basement floor or discontinuing operation of the radon fan?

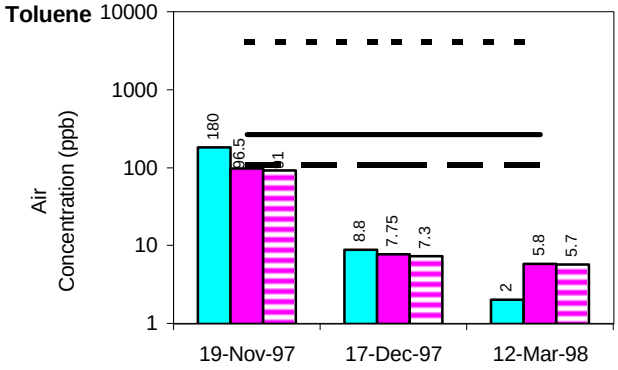
DEP Spill #: P-639-97; Minot
Fuel Type: No. 2 Fuel Oil
Spill Discovered: 10-Nov-97

Key: Basement, Living Area, Hallway; Acute A.L., Subchronic A.L., Chronic A.L.

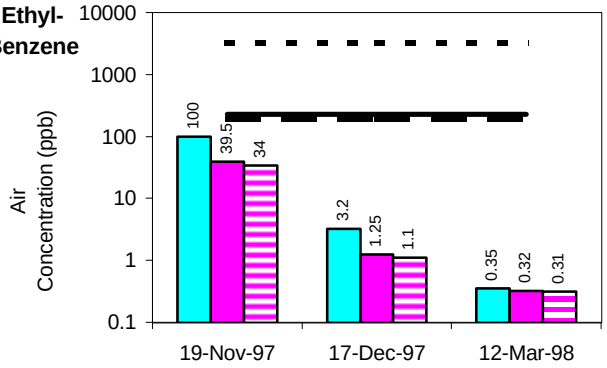
Benzene



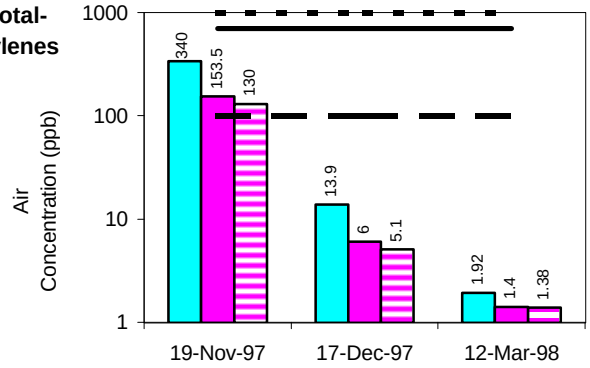
Toluene



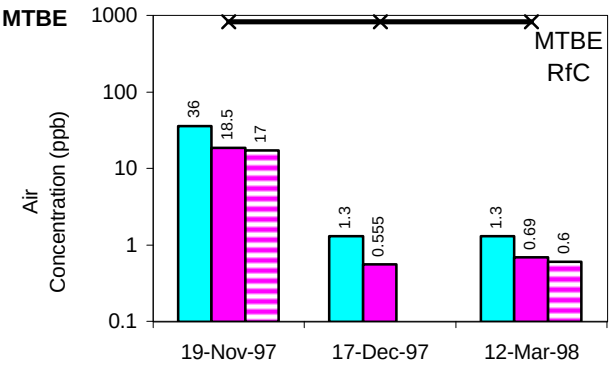
Ethyl-Benzene



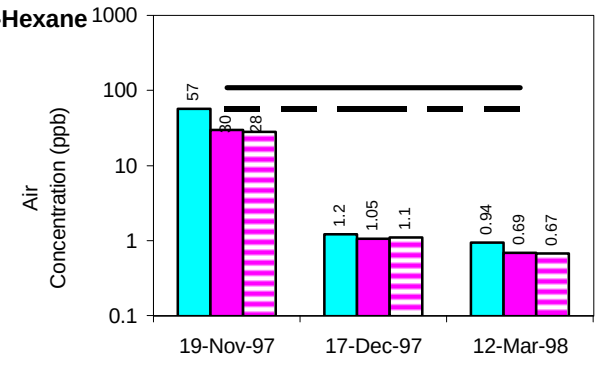
Total-Xylenes



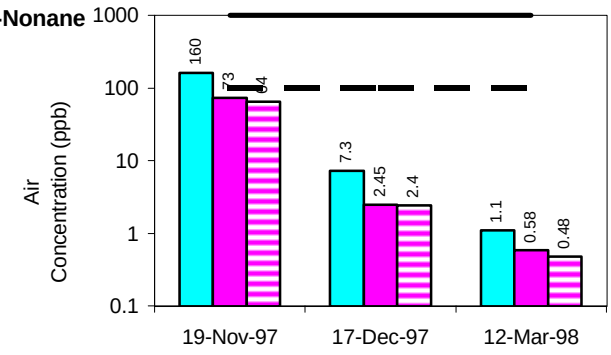
MTBE



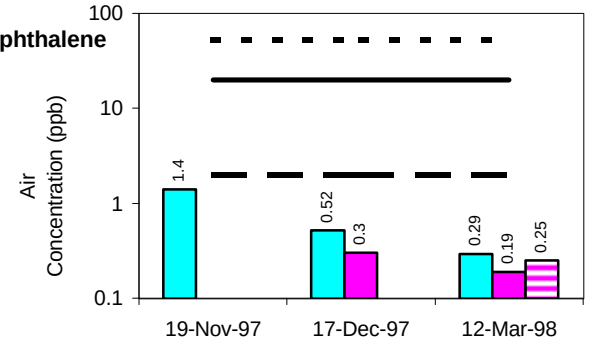
n-Hexane



n-Nonane



Naphthalene



Notes:

1. The living area and hallway samples were collected on the first floor.
2. The November sampling round consisted of instantaneous Tedlar Grab samples.
3. The dates represent the beginning of 24-hour sampling periods in December and March.
4. When a bar is not present, the compound was not detected.
5. The remedial activities included vactoring fuel oil on November 16. A ventilation system was installed November 19, during the instantaneous sample collection.

DEP Spill #: **P-662-96**
Town: **Scarborough**
Fuel Type: **No. 2 Fuel Oil**
Spill Discovered: **October 23, 1996**

Spill Description

On October 23, 1996, the homeowner reported that flooding in the basement due to recent torrential rains had damaged the basement oil tank. The tank discharged approximately 275 gallons of No. 2 fuel oil in the flooded basement. A layer of oil was floating on the water. Electrical service to the house was disconnected due to the water level in the basement. Areas of the house impacted by the spill included the basement. The house uses a forced hot air heating system with floor vents.

Potential Sources of Petroleum Compounds Unrelated to the Spill That May Affect Indoor Air Quality

The only potential indoor source of petroleum reported was the oil tank in the basement. Recent renovations to the house included reshingling the roof. Residents smoke cigarettes outside on the porch. The house is situated on a moderately busy street.

Reported Health Effects

Because the first round of sampling was collected prior to the trial guideline, health effects were not noted. During the second sampling round, residents did not complain of health effects.

Remediation

DEP started the investigation two weeks after the discovery of the spill, on November 6, 1996. The same day the spill was reported, Clean Harbors vacuumed oil from the water surface for several hours. However, additional work was required once the water level in the basement receded enough to allow access. The following week, Clean Harbors resumed the oil skimming operation. When the oil layer became too thin and discontinuous to be vacuumed sorbent pads were used on the water surface. A generator, outside the bulkhead, was used to pump water out of the basement. Carbon filtration was used to remove standing water from the basement because water drains to a storm sewer, which in turn discharges to the Scarborough River. After all standing water was removed from the basement, oil covered debris, designated as special waste, was disposed. The walls and floor of the basement were then power-washed and the house was deodorized. A new furnace was installed on November 18th and 19th, 1996.

Indoor Air Sampling

November 6, 1996

PID Screening

Indoor air screening results using a PID showed 4 ppm in the basement, 14 ppm in the kitchen, and 16 ppm on the second floor landing.

Sampling

The first sampling round included the collection of two, 4-hour, indoor air samples. One, 4-hour, outdoor air sample was also collected. The outside sampler was placed on the front lawn of the neighbors' residence, to the east and upwind of where the discharge occurred. A basement sampler was placed on a dresser on the opposite end of the basement from where the discharge occurred. Because of the pumping operation in the basement during sampling, the bulkhead doors were open. A kitchen sampler was placed on a table in the middle of the room. Heating vents on the floor were covered with newspaper during sampling. Doors and windows were closed during sampling, however; residents had been airing out the house prior to sampling for an unknown length of time. The basement was flooded for 16 days prior to sampling.

Results

Samples were analyzed by Air Toxics for the 61 compound TO-14 analyte list. Naphthalene and nonane were reported as tentatively identified compounds (TICs). During the first round of sampling, after oil had been cleaned off the water surface in the basement, the benzene concentration detected in the basement (3.7 ppb) exceeded the chronic action level. The total xylenes concentration detected in the basement (132 ppb) and kitchen (250 ppb) exceeded the chronic action level. Nonane concentrations detected in the basement (280 ppb as a TIC at 87 % match quality) and kitchen (290 ppb as a TIC at 76 % match quality) exceeded the chronic action level. Naphthalene concentrations detected in the basement (170 ppb as a TIC at 87 % match quality) and kitchen (18 ppb as a TIC at 90 % match quality) exceeded the acute action level and the chronic action level, respectively. Results for TPH referenced to gasoline were also reported. TPH concentrations ranged from 0.093 ppm (C2-C8) to 25 ppm (C9+) in the basement, 0.059 ppm (C2-C8) to 12 ppm (C9+) in the kitchen, and 0.013 ppm (C2-C8) to 0.028 ppm (C9+) outside. Generally, concentrations in the kitchen were higher than the basement however benzene was only detected in the basement.

February 5-6, 1998

Odors

No fuel odor was detected.

Sampling

Sampling included the collection of three, 24-hour, air samples, in the same locations as the first round, including the basement, kitchen, and outside. The outside sampler was placed on a snow bank, at the top of the driveway, adjacent to the house. The house was heated during sampling and a dryer venting to the basement was turned off immediately prior to sampling. The second round of sampling took place 15 months after the spill and cleanup activities in the basement. These samples were collected to

compare concentrations during clean-up to concentrations after closure with respect to action levels.

Results

Action levels were not exceeded during the second round of sampling. Detected concentrations of TPH, which did not resemble a diesel pattern, were 0.67 ppm in the basement and 1.3 ppm in the kitchen and outside.

Were DEP Indoor Air Action Levels Exceeded?

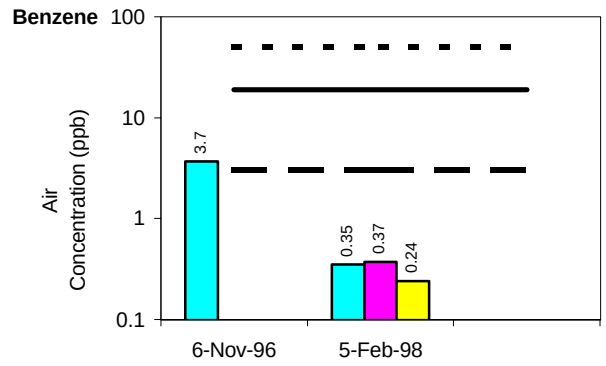
Action levels were exceeded in the first round only. Benzene detected in the basement exceeded the chronic action level and total xylenes detected in the basement and kitchen exceeded the chronic action level. Nonane and naphthalene exceeded chronic action levels in the basement and kitchen, while naphthalene also exceeded the acute action level in the basement. However, naphthalene and nonane were reported as TICs, with match quality ranging from 76 to 90 percent.

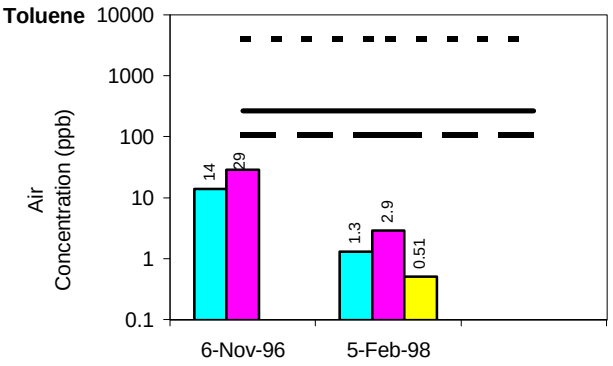
Potential for Future Indoor Air Quality Problems

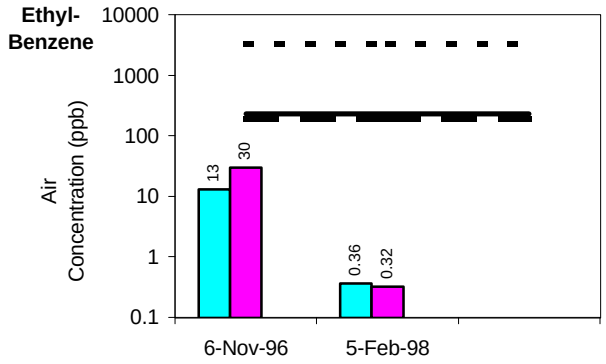
Fuel oil degradation is expected, given that the spill occurred over a year ago.

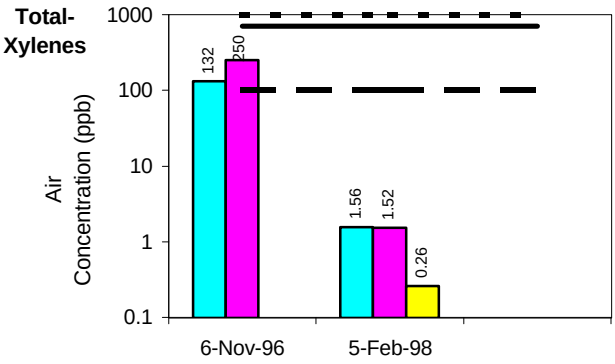
DEP Spill #: P-662-96; Scarborough
Fuel Type: No. 2 Fuel Oil
Spill Discovered: 23-Oct-96

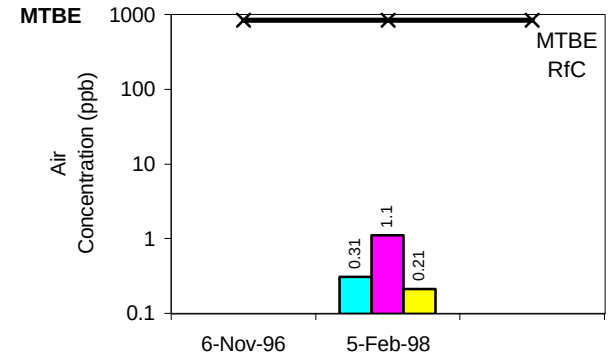
Key: Basement, Kitchen, Outside; Acute A.L., Subchronic A.L., Chronic A.L.

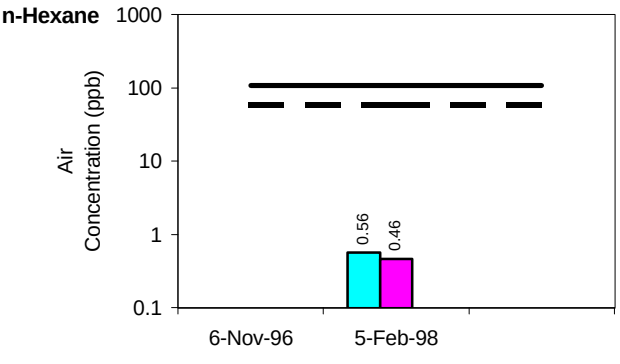


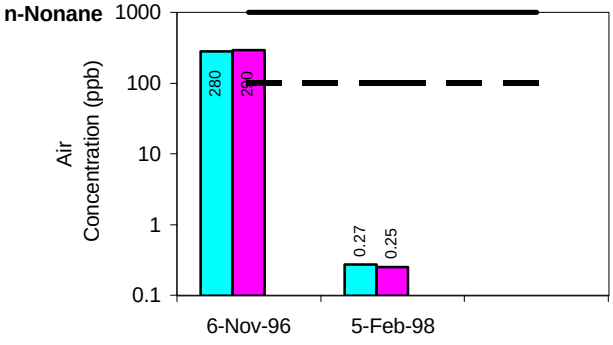


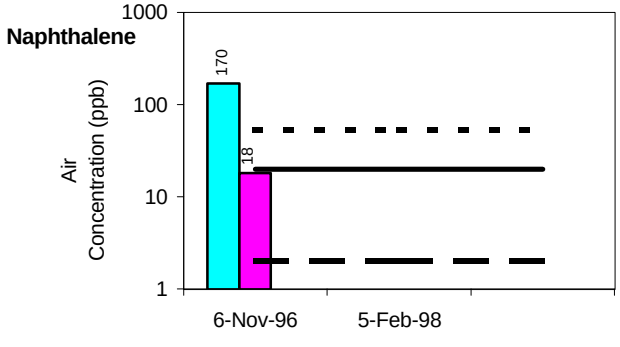












Notes:

1. The kitchen sample was collected on the first floor.
2. The dates represent the beginning of 4-hour (November) and 24-hour (February) sampling periods.
3. When a bar is not present, the compound was not detected.
4. November 1996 samples were analyzed by Air Toxics, with naphthalene and nonane reported as TICs.
5. Oil and water were pumped from the basement on November 6 during sampling, and during the following week.
6. February 1998 sampling occurred 15 months after the spill and cleanup.

Maine DEP Spill #	Town	Investigation Start	Date of Spill or Date Spill Discovered	Type of Spill	Location of Spill	Size of Spill (gallons)	Cause of Spill	Areas Impacted
A-425-97	Augusta	10/23/97	10/16/97	no.2 fuel oil	basement, sub-slab	350	copper line leak	sub-slab tank area, perimeter trench, sump pit
A-425-97	Augusta	10/23/97	10/16/97	no.2 fuel oil	basement, sub-slab	350	copper line leak	sub-slab tank area, perimeter trench, sump pit
A-425-97	Augusta	10/23/97	10/16/97	no.2 fuel oil	basement, sub-slab	350	copper line leak	sub-slab tank area, perimeter trench, sump pit
A-425-97	Augusta	10/23/97	10/16/97	no.2 fuel oil	basement, sub-slab	350	copper line leak	sub-slab tank area, perimeter trench, sump pit
A-425-97	Augusta	10/23/97	10/16/97	no.2 fuel oil	basement, sub-slab	350	copper line leak	sub-slab tank area, perimeter trench, sump pit
A-425-97	Augusta	10/23/97	10/16/97	no.2 fuel oil	basement, sub-slab	350	copper line leak	sub-slab tank area, perimeter trench, sump pit
A-425-97	Augusta	10/23/97	10/16/97	no.2 fuel oil	basement, sub-slab	350	copper line leak	sub-slab tank area, perimeter trench, sump pit
		10/23/97	10/16/97	no.2 fuel oil	basement, sub-slab	350	copper line leak	sub-slab tank area, perimeter trench, sump pit
A-425-97	Augusta	10/23/97	10/16/97	no.2 fuel oil	basement, sub-slab	350	copper line leak	sub-slab tank area, perimeter trench, sump pit
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
			7/97? / 11/2/97					
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
			7/97? / 11/2/97					
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump

Maine DEP Spill #	Odor Present at Time of Sampling?	Health Effects	Other Indoor Sources	House Type	Attached Garage	Foundation	Year Built
A-425-97	yes living	yes	oil tank	single, 2-story	yes	basement	1950
A-425-97	no (lingers in bsmt.)	yes	oil tank	single, 2-story	yes	basement	1950
A-425-97	no (lingers in bsmt.)	yes	oil tank	single, 2-story	yes	basement	1950
A-425-97	no (lingers in bsmt.)	yes	oil tank	single, 2-story	yes	basement	1950
A-425-97	no (lingers in bsmt.)	yes	oil tank	single, 2-story	yes	basement	1950
A-425-97	no (lingers in bsmt.)	yes	oil tank	single, 2-story	yes	basement	1950
A-425-97	no (lingers in bsmt.)	yes	oil tank	single, 2-story	yes	basement	1950
	no (lingers in bsmt.)	yes					
A-425-97	no (lingers in bsmt.)	yes	oil tank	single, 2-story	yes	basement	1950
P-636-97	yes	yes	oil tank, furniture wax	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes	yes	oil tank, furniture wax	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes	yes	oil tank, furniture wax	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes	yes	oil tank, furniture wax	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes	yes	oil tank, furniture wax	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (basement)	yes	oil tank, furniture wax	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (basement)	yes	oil tank, furniture wax	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (basement)	yes	oil tank, furniture wax	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (basement)	yes	oil tank, furniture wax	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (slight in basement)	yes	oil tank, gas can in attached garage	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (slight in basement)	yes	oil tank, gas can in attached garage	single, 2-story	yes	basement / crawl	1961 bought

Maine DEP Spill #	Recent Renovations (in last year)	Description of Area Surrounding House	Traffic Level Near House	Potential Outdoor Sources	Heat Source
A-425-97	no	lawn	moderate	no	oil
A-425-97	no	lawn	moderate	no	oil
A-425-97	no	lawn	moderate	no	oil
A-425-97	no	lawn	moderate	no	oil
A-425-97	no	lawn	moderate	no	oil
A-425-97	no	lawn	moderate	no	oil
A-425-97	no	lawn	moderate	no	oil
A-425-97	no	lawn	moderate	no	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil

Maine DEP Spill #	Furnace Type	Any Secondary Heating Source(s) Present?	Gas Stove	Air Cleaners	Air Conditioning	Smoking (average # of cigarettes per day)	Meteorologic Data
A-425-97	steam/water	no	no	no	living room	visitors, <10	
A-425-97	steam/water	no	no	no	living room	visitors, <10	
A-425-97	steam/water	no	no	no	living room	visitors, <10	
A-425-97	steam/water	no	no	no	living room	visitors, <10	
A-425-97	steam/water	no	no	no	living room	visitors, <10	
A-425-97	steam/water	no	no	no	living room	visitors, <10	
A-425-97	steam/water	no	no	no	living room	visitors, <10	
P-636-97	hot water	no	yes	no	no	no	40 F, 60 % humidity, mostly cloudy, storm front
P-636-97	hot water	no	yes	no	no	no	40 F, 60 % humidity, mostly cloudy, storm front
P-636-97	hot water	no	yes	no	no	no	40 F, 60 % humidity, mostly cloudy, storm front
P-636-97	hot water	no	yes	no	no	no	40 F, 60 % humidity, mostly cloudy, storm front
P-636-97	hot water	no	yes	no	no	no	40 F, 60 % humidity, mostly cloudy, storm front
P-636-97	hot water	no	yes	no	no	no	35 F, clouding, rain expected overnight
P-636-97	hot water	no	yes	no	no	no	35 F, clouding, rain expected overnight
P-636-97	hot water	no	yes	no	no	no	35 F, clouding, rain expected overnight
P-636-97	hot water	no	yes	no	no	no	35 F, clouding, rain expected overnight
P-636-97	hot water	no	yes	no	no	yes guests 2/22/98	35 F, 10-15 mph gusts, high humidity, heavy rain
P-636-97	hot water	no	yes	no	no	yes guests 2/22/98	35 F, 10-15 mph gusts, high humidity, heavy rain

Maine DEP Spill #	Activities during sampling	Sample Location	DEP Staff Conducting Sampling	DEP Sample #
A-425-97	heat, basement naturally ventilated , sorbent padding	Living Area	P. Locklin	56
A-425-97	heat, radon fan operating, kitchen window open, post-sub-slab vactoring from wells / water injection	Living Area	P. Locklin	45
A-425-97	heat, radon fan operating, kitchen window open, post-sub-slab vactoring from wells / water injection	Outside	P. Locklin	380
A-425-97	heat, radon fan operating, kitchen window open, post-sub-slab vactoring from wells / water injection	Source Area	P. Locklin	281
A-425-97	heat, radon fan operating, kitchen window open, post-sub-slab vactoring from wells / water injection			
		Source Area Average		
A-425-97	post-remediation - no log, radon fan operating	Living Area	P. Locklin	Living Room #186
A-425-97	post-remediation - no log, radon fan operating			
	post-remediation - no log, radon fan operating	Living Area Average		
A-425-97	post-remediation - no log, radon fan operating	Basement	P. Locklin	Basement #103
P-636-97	heat (vactoring, drainage, v. barrier, fill just prior to sampling)	Living Area	P. Eremita	#1/00478
P-636-97	heat (vactoring, drainage, v. barrier, fill just prior to sampling)	Basement	P. Eremita	#2/00365
P-636-97	heat (vactoring, drainage, v. barrier, fill just prior to sampling)			
		Basement Average		
P-636-97	heat (vactoring, drainage, v. barrier, fill just prior to sampling)	Outside (dug well tile)	P. Eremita	#3/00061
P-636-97	heat (vactoring, drainage, v. barrier, fill just prior to sampling)			
		Outside (dug well tile) Average		
P-636-97	heat, ventilation system (11/24), cooked bacon odor	Living Area	P. Eremita	#1/00348
P-636-97	heat, ventilation system (11/24), cooked bacon odor			
		Living Area Average		
P-636-97	heat, ventilation system (11/24), cooked bacon odor	Basement	P. Eremita	#2/00323
P-636-97	heat, ventilation system (11/24), cooked bacon odor	Outside (dug well tile)	P. Eremita	#3/00574
P-636-97	heat, ventilation system, soap/Glade, smoking in spare 1st fl. bdrm on 2/22/98	Living Area	P. Eremita	S1-426
P-636-97	heat, ventilation system, soap/Glade, smoking in spare 1st fl. bdrm on 2/22/98			

Trial Period Study Database

Maine Department of Environmental Protection

Maine DEP Spill #	Lab Sample #	Sample Collection Date	Sample Type	Analytical Method	tert Butyl Methyl Ether				Hexane			
					result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb
A-425-97	P9704224-1	29-Oct-97	Summa Grab	TO-14	59.0	1.0	16.0	0.3	100.0	1.0	29.0	0.3
A-425-97	P9704234-1	30-Oct-97	Summa 24 hour	TO-14	11.0	1.0	3.2	0.3	6.7	1.0	1.9	0.3
A-425-97	P9704234-2	30-Oct-97	Summa 24 hour	TO-14	7.4	1.0	2.0	0.3	3.0	1.0	0.8	0.3
A-425-97	P9704234-3	30-Oct-97	Summa 24 hour	TO-14	16.0	1.0	4.5	0.3	15.0	1.0	4.4	0.3
A-425-97	P9704234-3 Dup				16.0	1.0	4.5	0.3	15.0	1.0	4.3	0.3
				Average	16.0	1.0	4.5	0.3	15.0	1.0	4.4	0.3
A-425-97	P9704362-1	18-Nov-97	Summa 24 hour	TO-14	2.2	1.0	0.6	0.3	1.5	1.0	0.4	0.3
A-425-97	P9704362-1 Dup				2.3	1.0	0.7	0.3	1.4	1.0	0.4	0.3
				Average	2.3	1.0	0.6	0.3	1.5	1.0	0.4	0.3
A-425-97	P9704362-2	18-Nov-97	Summa 24 hour	TO-14	15.0	1.0	4.2	0.3	2.5	1.0	0.7	0.3
P-636-97	P9704365-1	21-Nov-97	Summa 4 hour	TO-14 & TPH	350.0	1.0	98.0	0.3	180.0	1.0	52.0	0.3
P-636-97	P9704365-2	21-Nov-97	Summa 4 hour	TO-14 & TPH	580.0	1.0	160	0.3	340.0	1.0	96.0	0.3
P-636-97	P9704365-2 Dup			TPH	na	na	na	na	na	na	na	na
				Average								
P-636-97	P9704365-3	21-Nov-97	Summa 4 hour	TO-14 & TPH	52.0	1.0	14.0	0.3	28.0	1.0	8.0	0.3
P-636-97	P9704365-3 Dup			TO-14	52.0	1.0	14.0	0.3	28.0	1.0	7.9	0.3
				Average	52.0	1.0	14.0	0.3	28.0	1.0	8.0	0.3
P-636-97	P9704458-1	4-Dec-97	Summa 24 hour	TO-14 & TPH	120.0	1.0	33.0	0.3	37.0	1.0	10.0	0.3
P-636-97	P9704458-1 Dup			TO-14 & TPH	120.0	1.0	32.0	0.3	37.0	1.0	11.0	0.3
				Average	120.0	1.0	32.5	0.3	37.0	1.0	10.5	0.3
P-636-97	P9704458-2	4-Dec-97	Summa 24 hour	TO-14 & TPH	110.0	1.0	31.0	0.3	37.0	1.0	11.0	0.3
P-636-97	P9704458-3	4-Dec-97	Summa 24 hour	TO-14 & TPH	8.0	1.0	2.2	0.3	2.9	1.0	0.8	0.3
P-636-97	P9800364-1	24-Feb-98	Summa 24 hour	TO-14 & TPH	160.0	1.0	45.0	0.3	40.0	1.0	12.0	0.3
P-636-97	P9800364-1 Dup				160.0	1.0	44.0	0.3	41.0	1.0	12.0	0.3

Trial Period Study Database

Maine Department of Environmental Protection

Maine DEP Spill #	Benzene				Toluene				Ethyl Benzene				m & p - Xylenes	
	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.
A-425-97	50.0	1.0	16.0	0.3	420.0	1.0	110	0.3	190.0	1.0	44.0	0.2	600.0	1.0
A-425-97	6.3	1.0	2.0	0.3	42.0	1.0	11.0	0.3	16.0	1.0	3.6	0.2	55.0	1.0
A-425-97	3.5	1.0	1.1	0.3	14.0	1.0	3.7	0.3	1.4	1.0	0.3	0.2	5.5	1.0
A-425-97	8.6	1.0	2.7	0.3	56.0	1.0	15.0	0.3	31.0	1.0	7.1	0.2	110.0	1.0
A-425-97	8.5	1.0	2.7	0.3	56.0	1.0	15.0	0.3	30.0	1.0	7.0	0.2	110.0	1.0
	8.6	1.0	2.7	0.3	56.0	1.0	15.0	0.3	30.5	1.0	7.1	0.2	110.0	1.0
A-425-97	3.1	1.0	1.0	0.3	19.0	1.0	5.0	0.3	1.6	1.0	0.4	0.2	7.9	1.0
A-425-97	3.1	1.0	1.0	0.3	18.0	1.0	4.7	0.3	1.7	1.0	0.4	0.2	7.2	1.0
	3.1	1.0	1.0	0.3	18.5	1.0	4.9	0.3	1.7	1.0	0.4	0.2	7.6	1.0
A-425-97	3.5	1.0	1.1	0.3	23.0	1.0	6.1	0.3	12.0	1.0	2.7	0.2	45.0	1.0
P-636-97	30.0	1.0	9.4	0.3	210.0	1.0	56.0	0.3	54.0	1.0	13.0	0.2	200.0	1.0
P-636-97	59.0	1.0	18.0	0.3	340.0	1.0	91.0	0.3	81.0	1.0	19.0	0.2	230.0	1.0
P-636-97	na	na	na	na	na	na	na	na	na	na	na	na	na	na
P-636-97	7.1	1.0	2.2	0.3	40.0	1.0	11.0	0.3	5.1	1.0	1.2	0.2	20.0	1.0
P-636-97	7.1	1.0	2.2	0.3	39.0	1.0	10.0	0.3	5.1	1.0	1.2	0.2	20.0	1.0
	7.1	1.0	2.2	0.3	39.5	1.0	10.5	0.3	5.1	1.0	1.2	0.2	20.0	1.0
P-636-97	9.6	1.0	3.0	0.3	87.0	1.0	23.0	0.3	18.0	1.0	4.2	0.2	69.0	1.0
P-636-97	9.7	1.0	3.0	0.3	86.0	1.0	23.0	0.3	19.0	1.0	4.3	0.2	69.0	1.0
	9.7	1.0	3.0	0.3	86.5	1.0	23.0	0.3	18.5	1.0	4.3	0.2	69.0	1.0
P-636-97	10.0	1.0	3.2	0.3	85.0	1.0	23.0	0.3	19.0	1.0	4.5	0.2	74.0	1.0
P-636-97	3.4	1.0	1.1	0.3	12.0	1.0	3.2	0.3	1.5	1.0	0.4	0.2	6.0	1.0
P-636-97	19.0	1.0	6.0	0.3	130.0	1.0	36.0	0.3	21.0	1.0	4.9	0.2	77.0	1.0
P-636-97	18.0	1.0	5.7	0.3	130.0	1.0	35.0	0.3	21.0	1.0	4.8	0.2	76.0	1.0

Maine DEP Spill #	o - Xylene				Total Xylenes				Nonane					
	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb
A-425-97	140.0	0.2	260.0	1.0	60.0	0.2	860.0	1.0	200	0.2	520.0	1.0	99.0	0.2
							0.0		0.0					
A-425-97	13.0	0.2	26.0	1.0	5.9	0.2	81.0	1.0	18.9	0.2	47.0	1.0	8.9	0.2
A-425-97	1.3	0.2	1.9	1.0	0.4	0.2	7.4	1.0	1.7	0.2	0.0	1.0	0.0	0.2
A-425-97	26.0	0.2	53.0	1.0	12.0	0.2	163.0	1.0	38.0	0.2	120.0	1.0	22.0	0.2
A-425-97	25.0	0.2	51.0	1.0	12.0	0.2	161.0	1.0	37.0	0.2	110.0	1.0	21.0	0.2
	25.5	0.2	52.0	1.0	12.0	0.2	162.0	1.0	37.5	0.2	115.0	1.0	21.5	0.2
							0.0		0.0					
A-425-97	1.8	0.2	3.3	1.0	0.8	0.2	11.2	1.0	2.6	0.2	4.4	1.0	0.8	0.2
A-425-97	1.7	0.2	3.1	1.0	0.7	0.2	10.3	1.0	2.4	0.2	3.9	1.0	0.8	0.2
	1.8	0.2	3.2	1.0	0.7	0.2	10.8	1.0	2.5	0.2	4.2	1.0	0.8	0.2
A-425-97	10.0	0.2	23.0	1.0	5.4	0.2	68.0	1.0	15.4	0.2	50.0	1.0	9.6	0.2
P-636-97	45.0	0.2	77.0	1.0	18.0	0.2	277.0	1.0	63.0	0.2	100.0	1.0	20.0	0.2
P-636-97	54.0	0.2	110.0	1.0	26.0	0.2	340.0	1.0	80.0	0.2	130.0	1.0	24.0	0.2
P-636-97	na	na	na	na	na	na	0.0	na	0.0	na	na	na	na	na
P-636-97	4.7	0.2	7.1	1.0	1.6	0.2	27.1	1.0	6.3	0.2	0.9	TR-1	0.2	TR-0.19
P-636-97	4.6	0.2	6.9	1.0	1.6	0.2	26.9	1.0	6.2	0.2	0.8	TR-1	0.2	TR-0.19
	4.7	0.2	7.0	1.0	1.6	0.2	27.0	1.0	6.3	0.2	0.9		0.2	
							0.0		0.0					
P-636-97	16.0	0.2	25.0	1.0	5.8	0.2	94.0	1.0	21.8	0.2	8.5	1.0	1.6	0.2
P-636-97	16.0	0.2	25.0	1.0	5.7	0.2	94.0	1.0	21.7	0.2	8.7	1.0	1.7	0.2
	16.0	0.2	25.0	1.0	5.8	0.2	94.0	1.0	21.8	0.2	8.6	1.0	1.7	0.2
P-636-97	17.0	0.2	29.0	1.0	6.7	0.2	103.0	1.0	23.7	0.2	20.0	1.0	3.8	0.2
P-636-97	1.4	0.2	2.0	1.0	0.5	0.2	8.0	1.0	1.9	0.2	0.0	1.0	0.0	0.2
							0.0		0.0					
P-636-97	18.0	0.2	27.0	1.0	6.2	0.2	104.0	1.0	24.2	0.2	6.3	1.0	1.2	0.2
P-636-97	18.0	0.2	27.0	1.0	6.3	0.2	103.0	1.0	24.3	0.2	6.3	1.0	1.2	0.2

Maine DEP Spill #	Naphthalene				TPH as Diesel				TPH as Kerosene				Screening PID Data
	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	
	ug/c.m.	ug/c.m.	ppb	ppb	mg/c.m.	mg/c.m.	ppm	ppm	mg/c.m.	mg/c.m.	ppm	ppm	ppm
A-425-97	70.0	1.0	13.0	0.2	na	na	na	na	na	na	na	na	na
A-425-97	13.0	1.0	2.5	0.2	na	na	na	na	na	na	na	na	na
A-425-97	0.0	1.0	0.0	0.2	na	na	na	na	na	na	na	na	
A-425-97	45.0	1.0	8.6	0.2	na	na	na	na	na	na	na	na	
A-425-97	43.0	1.0	8.3	0.2	na	na	na	na	na	na	na	na	
	44.0	1.0	8.5	0.2									
A-425-97	0.0	1.0	0.0	0.2	na	na	na	na	na	na	na	na	na
A-425-97	0.0	1.0	0.0	0.2	na	na	na	na	na	na	na	na	
	0.0	1.0	0.0	0.2									
A-425-97	14.0	1.0	2.6	0.2	na	na	na	na	na	na	na	na	
P-636-97	14.0	1.0	2.7	0.2	3.6	TR-5.1*	0.4	TR-0.56*	na	na	na	na	5
P-636-97	28.0	1.0	5.3	0.2	5.7	2.1*	0.6	0.23*	na	na	na	na	35
P-636-97	na	na	na	na	6.1	2.1*	0.7	0.23*	na	na	na	na	
					5.9		0.6						
P-636-97	0.0	1.0	0.0	0.2	0.0	5.9	0.0	0.6	na	na	na	na	
P-636-97	0.0	1.0	0.0	0.2	na	na	na	na	na	na	na	na	
	0.0	1.0	0.0	0.2									
P-636-97	5.4	1.0	1.0	0.2	0.0	3.3	0.0	0.4	na	na	na	na	na
P-636-97	5.2	1.0	1.0	0.2	0.0	3.3	0.0	0.4	na	na	na	na	
	5.3	1.0	1.0	0.2	0.0	3.3	0.0	0.4					
P-636-97	9.1	1.0	1.7	0.2	0.0	3.7	0.0	0.4	na	na	na	na	
P-636-97	0.0	1.0	0.0	0.2	0.0	7.1	0.0	0.8	na	na	na	na	
P-636-97	2.2	1.0	0.4	0.2	0.0	6.5	0.0	0.7	na	na	na	na	0.99
P-636-97	2.0	1.0	0.4	0.2	na	na	na	na	na	na	na	na	

Maine DEP Spill #	Quality Control	1,2-Dichloroethane-D4	Toluene-D8	Bromofluorobenzene	% Recovery within Method Limits (70-130)
A-425-97	Method Blank - ND	91.2	99.6	102.0	yes
A-425-97		84.2	102.0	99.9	yes
A-425-97		77.9	107.0	97.4	yes
A-425-97		84.1	103.0	97.5	yes
A-425-97		78.6	105.0	97.4	yes
A-425-97	Method Blank - ND	115.0	104.0	92.5	yes
A-425-97		111.0	101.0	86.9	yes
A-425-97		111.0	98.8	98.8	yes
P-636-97	Method Blank - ND	110.0	98.6	101.0	yes
P-636-97		85.6	99.1	97.1	yes
P-636-97					
P-636-97		77.1	99.1	96.8	yes
P-636-97		82.0	101.0	98.9	yes
P-636-97	Method Blank - ND	116.0	112.0	86.0	yes
P-636-97		109.0	107.0	93.9	yes
P-636-97		96.2	110.0	92.8	yes
P-636-97		92.3	110.0	92.0	yes
P-636-97	Method Blank - ND	111.0	104.0	95.1	yes
P-636-97		108.0	100.0	97.4	yes

Maine DEP Spill #	Town	Investigation Start	Date of Spill or Date Spill Discovered	Type of Spill	Location of Spill	Size of Spill (gallons)	Cause of Spill	Areas Impacted
			7/97? / 11/2/97					
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
			7/97? / 11/2/97					
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-636-97	Groveville	11/10/97	7/97? / 11/2/97	no.2 fuel oil	basement	50 - 100	copper line leak	tank area, sand floor, behind brick wall, sump
P-639-97	Minot	11/17/97	11/10/97	no.2 fuel oil	basement sub-slab	250	copper line leak over time	sub-slab, perimeter/underdrain, sump, swamp
P-639-97	Minot	11/17/97	11/10/97	no.2 fuel oil	basement sub-slab	250	copper line leak over time	sub-slab, perimeter/underdrain, sump, swamp
P-639-97	Minot	11/17/97	11/10/97	no.2 fuel oil	basement sub-slab	250	copper line leak over time	sub-slab, perimeter/underdrain, sump, swamp
P-639-97	Minot	11/17/97	11/10/97	no.2 fuel oil	basement sub-slab	250	copper line leak over time	sub-slab, perimeter/underdrain, sump, swamp
P-639-97	Minot	11/17/97	11/10/97	no.2 fuel oil	basement sub-slab	250	copper line leak over time	sub-slab, perimeter/underdrain, sump, swamp
P-639-97	Minot	11/17/97	11/10/97	no.2 fuel oil	basement sub-slab	250	copper line leak over time	sub-slab, perimeter/underdrain, sump, swamp
P-639-97	Minot	11/17/97	11/10/97	no.2 fuel oil	basement sub-slab	250	copper line leak over time	sub-slab, perimeter/underdrain, sump, swamp
P-639-97	Minot	11/17/97	11/10/97	no.2 fuel oil	basement sub-slab	250	copper line leak over time	sub-slab, perimeter/underdrain, sump, swamp
P-639-97	Minot	11/17/97	11/10/97	no.2 fuel oil	basement sub-slab	250	copper line leak over time	sub-slab, perimeter/underdrain, sump, swamp
P-639-97	Minot	11/17/97	11/10/97	no.2 fuel oil	basement sub-slab	250	copper line leak over time	sub-slab, perimeter/underdrain, sump, swamp

Maine DEP Spill #	Odor Present at Time of Sampling?	Health Effects	Other Indoor Sources	House Type	Attached Garage	Foundation	Year Built
P-636-97	yes (slight in basement)	yes	oil tank, gas can in attached garage	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (slight in basement)	yes	oil tank, gas can in attached garage	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (slight in basement)	yes	oil tank, gas can in attached garage	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (by basement sampler)		oil tank, gas can in attached garage, sump pads	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (by basement sampler)		oil tank, gas can in attached garage, sump pads	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (by basement sampler)		oil tank, gas can in attached garage, sump pads	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (slight in basement)		bath cleaner; bsmt. oil leaks, gas generators and cans, lawn mowers	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (slight in basement)		bath cleaner; bsmt. oil leaks, gas generators and cans, lawn mowers	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (slight in basement)		bath cleaner; bsmt. oil leaks, gas generators and cans, lawn mowers	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (slight in basement)		bath cleaner; bsmt. oil leaks, gas generators and cans, lawn mowers	single, 2-story	yes	basement / crawl	1961 bought
P-636-97	yes (slight in basement)		bath cleaner; bsmt. oil leaks, gas generators and cans, lawn mowers	single, 2-story	yes	basement / crawl	1961 bought
P-639-97	yes, strong in living, basement	yes	oil tank	single, 1-story	no	basement	1986 or later
P-639-97	yes, strong in living, basement	yes	oil tank	single, 1-story	no	basement	1986 or later
		yes	oil tank				
P-639-97	yes, strong in living, basement	yes	oil tank	single, 1-story	no	basement	1986 or later
P-639-97	yes, strong in living, basement	yes	oil tank	single, 1-story	no	basement	1986 or later
P-639-97	no	yes	oil tank	single, 1-story	no	basement	1986 or later
P-639-97	no	yes	oil tank	single, 1-story	no	basement	1986 or later
		yes	oil tank				
P-639-97	no	yes	oil tank	single, 1-story	no	basement	1986 or later
P-639-97	no	yes	oil tank	single, 1-story	no	basement	1986 or later
P-639-97	no	yes	oil tank	single, 1-story	no	basement	1986 or later
P-639-97	no	yes	oil tank	single, 1-story	no	basement	1986 or later

Maine DEP Spill #	Recent Renovations (in last year)	Description of Area Surrounding House	Traffic Level Near House	Potential Outdoor Sources	Heat Source
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97	no	lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97	removed deck to replace sill	lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97	removed deck to replace sill	lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97	removed deck to replace sill	lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97		lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97		lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97		lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-636-97		lawn	busy - moderate	gas station, dump truck route, sump, propane, fan exhaust	oil
P-639-97	no	lawn	quiet	perimeter drain "fouled", sump pumped to swamp, radon fan	oil
P-639-97	no	lawn	quiet	perimeter drain "fouled", sump pumped to swamp, radon fan	oil
				perimeter drain "fouled", sump pumped to swamp, radon fan	
P-639-97	no	lawn	quiet	perimeter drain "fouled", sump pumped to swamp, radon fan	oil
P-639-97	no	lawn	quiet	perimeter drain "fouled", sump pumped to swamp, radon fan	oil
P-639-97	no	lawn	quiet	perimeter drain "fouled", sump pumped to swamp, radon fan	oil
P-639-97	no	lawn	quiet	perimeter drain "fouled", sump pumped to swamp, radon fan	oil
				perimeter drain "fouled", sump pumped to swamp, radon fan	
P-639-97	no	lawn	quiet	perimeter drain "fouled", sump pumped to swamp, radon fan	oil
P-639-97	no	lawn	quiet	perimeter drain "fouled", sump pumped to swamp, radon fan	oil
P-639-97	no	lawn	quiet	perimeter drain "fouled", sump pumped to swamp, radon fan	oil
P-639-97	no	lawn	quiet	perimeter drain "fouled", sump pumped to swamp, radon fan	oil

Maine DEP Spill #	Furnace Type	Any Secondary Heating Source(s) Present?	Gas Stove	Air Cleaners	Air Conditioning	Smoking (average # of cigarettes per day)	Meteorologic Data
P-636-97	hot water	no	yes	no	no	yes guests 2/22/98	35 F, 10-15 mph gusts, high humidity, heavy rain
P-636-97	hot water	no	yes	no	no	yes guests 2/22/98	35 F, 10-15 mph gusts, high humidity, heavy rain
P-636-97	hot water	no	yes	no	no	yes guests 2/22/98	35 F, 10-15 mph gusts, high humidity, heavy rain
P-636-97	hot water	no	yes	no	no	yes-guests-4/26/98	mostly clear, 60 F
P-636-97	hot water	no	yes	no	no	yes-guests-4/26/98	mostly clear, 60 F
P-636-97	hot water	no	yes	no	no	yes-guests-4/26/98	mostly clear, 60 F
P-636-97	hot water	no	yes	no	no		garage - 65 F
P-636-97	hot water	no	yes	no	no		garage - 65 F
P-636-97	hot water	no	yes	no	no		garage - 65 F
P-636-97	hot water	no	yes	no	no		garage - 65 F
P-636-97	hot water	no	yes	no	no		garage - 65 F
P-639-97	hot water	woodstove-rarely used	no	HEPA	kitchen	no	
P-639-97	hot water	woodstove-rarely used	no	HEPA	kitchen	no	
		woodstove-rarely used	no	HEPA	kitchen	no	
P-639-97	hot water	woodstove-rarely used	no	HEPA	kitchen	no	
P-639-97	hot water	woodstove-rarely used	no	HEPA	kitchen	no	
P-639-97	hot water	woodstove-rarely used	no	HEPA	kitchen	no	0 C and sunny
P-639-97	hot water	woodstove-rarely used	no	HEPA	kitchen	no	0 C and sunny
		woodstove-rarely used	no	HEPA	kitchen	no	0 C and sunny
P-639-97	hot water	woodstove-rarely used	no	HEPA	kitchen	no	0 C and sunny
P-639-97	hot water	woodstove-rarely used	no	HEPA	kitchen	no	0 C and sunny
P-639-97	hot water	woodstove-rarely used	no	HEPA	kitchen	no	-13 degrees C, sunny, some snow, very cold & windy
P-639-97	hot water	woodstove-rarely used	no	HEPA	kitchen	no	-13 degrees C, sunny, some snow, very cold & windy

Maine DEP Spill #	Activities during sampling	Sample Location	DEP Staff Conducting Sampling	DEP Sample #
	heat, ventilation system, soap/Glade, smoking in spare 1st fl. bdrm on 2/22/98	Living Area Average		
P-636-97	heat, ventilation system, soap/Glade, smoking in spare 1st fl. bdrm on 2/22/98	Basement	P. Eremita	S2-492
P-636-97	heat, ventilation system, soap/Glade, smoking in spare 1st fl. bdrm on 2/22/98	Basement	P. Eremita	S4-281 Fld. Dup.
		Basement Average		Average
P-636-97	heat, ventilation system, soap/Glade, smoking in spare 1st fl. bdrm on 2/22/98	Outside (dug well tile)	P. Eremita	S3-223
P-636-97	heat, ventilation system, dishwash soap, smoking in spare 1st fl. bdrm on 4/26/98	Living Area	P. Eremita	459
P-636-97	heat, ventilation system, dishwash soap, smoking in spare 1st fl. bdrm on 4/26/98	Basement	P. Eremita	438
P-636-97	heat, ventilation system, dishwash soap, smoking in spare 1st fl. bdrm on 4/26/98	Hallway	P. Eremita	491
P-636-97	Speedie Dry on garage floor, oil tank leaks, cracks in garage / kitchen wall	Living Area	P. Eremita	445
P-636-97	Speedie Dry on garage floor, oil tank leaks, cracks in garage / kitchen wall	Basement	P. Eremita	589
P-636-97	Speedie Dry on garage floor, oil tank leaks, cracks in garage / kitchen wall	Garage (Step to Attic)	P. Eremita	427
P-636-97	Speedie Dry on garage floor, oil tank leaks, cracks in garage / kitchen wall	Garage (Behind Tractor)	P. Eremita	185
P-636-97	Speedie Dry on garage floor, oil tank leaks, cracks in garage / kitchen wall	Garage (Behind Tractor)	P. Eremita	
P-639-97	pumped out sump and swamp prior to sampling	Living Area (kit/din/liv)	B. Lambert	#1
P-639-97	pumped out sump and swamp prior to sampling			
	pumped out sump and swamp prior to sampling	Living Area (kit/din/liv) Average		
P-639-97	pumped out sump and swamp prior to sampling	Hallway	B. Lambert	#2
P-639-97	pumped out sump and swamp prior to sampling	Basement	B. Lambert	#3
P-639-97	heat, post-remed.(11/19/97 installed sub-slab vent. System), pumping yard w/ rain	Living Area (kit/din/liv)	B. Lambert	#1/00566
P-639-97	heat, post-remed.(11/19/97 installed sub-slab vent. System), pumping yard w/ rain			
	heat, post-remed.(11/19/97 installed sub-slab vent. System), pumping yard w/ rain	Living Area (kit/din/liv) Average		
P-639-97	heat, post-remed.(11/19/97 installed sub-slab vent. System), pumping yard w/ rain	Hallway	B. Lambert	#2/00354
P-639-97	heat, post-remed.(11/19/97 installed sub-slab vent. System), pumping yard w/ rain	Basement	B. Lambert	#3/00331
P-639-97	heat, cleaned kitchen w/ ammonia and water, post-sub-slab vent. System, pumping yard w/ rain,	Living Area (kit/din/liv)	B. Lambert	144
P-639-97	heat, cleaned kitchen w/ ammonia and water, post-sub-slab vent. System, pumping yard w/ rain,	Hallway (by bdrms)	B. Lambert	37

Trial Period Study Database

Maine Department of Environmental Protection

Maine DEP Spill #	Lab Sample #	Sample Collection Date	Sample Type	Analytical Method	tert Butyl Methyl Ether				Hexane			
					result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb
				Average	160.0	1.0	44.5	0.3	40.5	1.0	12.0	0.3
P-636-97	P9800364-2	24-Feb-98	Summa 24 hour	TO-14 & TPH	170.0	1.0	47.0	0.3	46.0	1.0	13.0	0.3
P-636-97	P9800364-4	24-Feb-98	Summa 24 hour	TO-14 & TPH	200.0	1.0	56.0	0.3	45.0	1.0	13.0	0.3
				Average	185.0	1.0	51.5	0.3	45.5	1.0	13.0	0.3
P-636-97	P9800364-3	24-Feb-98	Summa 24 hour	TO-14 & TPH	4.2	1.0	1.2	0.3	1.4	1.0	0.4	0.3
P-636-97	P9800760-1	28-Apr-98	Summa 24 hour	TO-14 & TPH	180.0	1.0	50.0	0.3	59.0	1.0	17.0	0.3
P-636-97	P9800760-2	28-Apr-98	Summa 24 hour	TO-14 & TPH	150.0	1.0	41.0	0.3	45.0	1.0	13.0	0.3
P-636-97	P9800760-3	28-Apr-98	Summa 24 hour	TO-14 & TPH	140.0	1.0	40.0	0.3	45.0	1.0	13.0	0.3
P-636-97	P9800901-1	19-May-98	Summa 24 hour	TO-14 & TPH	200.0	4.0	56.0	1.1	50.0	4.0	14.0	1.1
P-636-97	P9800901-2	19-May-98	Summa 24 hour	TO-14 & TPH	110.0	2.0	31.0	0.6	24.0	2.0	6.9	0.6
P-636-97	P9800901-3	19-May-98	Summa 24 hour	TO-14 & TPH	540.0	2.0	150	0.6	150.0	2.0	44.0	0.6
P-636-97	P9800901-4	19-May-98	Summa 24 hour	TO-14 & TPH	980.0	2.0	270	0.6	270.0	2.0	76.0	0.6
P-636-97	P9800901-4 Dup	19-May-98	Summa 24 hour	TPH	na	na	na	na	na	na	na	na
				Average	760.0	2.0	210	0.6	210.0	2.0	60.0	0.6
P-639-97	P9704347-1	19-Nov-97	Tedlar Grab	TO-14	70.0	5.0	19.0	1.4	110.0	5.0	31.0	1.4
P-639-97	P9704347-1 Dup				65.0	5.0	18.0	1.4	100.0	5.0	29.0	1.4
				Average	67.5	5.0	18.5	1.4	105.0	5.0	30.0	1.4
P-639-97	P9704347-2	19-Nov-97	Tedlar Grab	TO-14	60.0	5.0	17.0	1.4	98.0	5.0	28.0	1.4
P-639-97	P9704347-3	19-Nov-97	Tedlar Grab	TO-14	130.0	5.0	36.0	1.4	200.0	5.0	57.0	1.4
P-639-97	P9704542-1	17-Dec-97	Summa 24 hour	TO-14 & TPH	2.0	1.0	0.6	0.3	3.7	1.0	1.1	0.3
P-639-97	P9704542-1 Dup				2.0	1.0	0.6	0.3	3.6	1.0	1.0	0.3
				Average	2.0	1.0	0.6	0.3	3.7	1.0	1.1	0.3
P-639-97	P9704542-2	17-Dec-97	Summa 24 hour	TO-14 & TPH	0.0	4.0	0.0	1.1	4.0	4.0	1.1	1.1
P-639-97	P9704542-3	17-Dec-97	Summa 24 hour	TO-14 & TPH	4.9	1.0	1.3	0.3	4.3	1.0	1.2	0.3
P-639-97	P9800422-1	12-Mar-98	Summa 24 hour	TO-14 & TPH	2.5	1.0	0.7	0.3	2.4	1.0	0.7	0.3
P-639-97	P9800422-2	12-Mar-98	Summa 24 hour	TO-14 & TPH	2.2	1.0	0.6	0.3	2.4	1.0	0.7	0.3

Maine DEP Spill #	Benzene				Toluene				Ethyl Benzene				m & p - Xylenes	
	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.
	18.5	1.0	5.9	0.3	130.0	1.0	35.5	0.3	21.0	1.0	4.9	0.2	76.5	1.0
P-636-97	22.0	1.0	6.8	0.3	150.0	1.0	41.0	0.3	24.0	1.0	5.5	0.2	85.0	1.0
P-636-97	21.0	1.0	6.6	0.3	130.0	1.0	34.0	0.3	24.0	1.0	5.4	0.2	84.0	1.0
	21.5	1.0	6.7	0.3	140.0	1.0	37.5	0.3	24.0	1.0	5.5	0.2	84.5	1.0
P-636-97	1.2	1.0	0.4	0.3	18.0	1.0	4.7	0.3	0.7	TR-1	0.2	TR-0.23	2.7	1.0
P-636-97	22.0	1.0	6.9	0.3	96.0	1.0	25.0	0.3	23.0	1.0	5.3	0.2	77.0	1.0
P-636-97	16.0	1.0	5.1	0.3	75.0	1.0	20.0	0.3	17.0	1.0	3.9	0.2	58.0	1.0
P-636-97	16.0	1.0	4.9	0.3	88.0	1.0	23.0	0.3	18.0	1.0	4.1	0.2	60.0	1.0
P-636-97	20.0	4.0	6.2	1.3	120.0	4.0	32.0	1.1	25.0	4.0	5.9	0.9	92.0	4.0
P-636-97	9.4	2.0	2.9	0.6	59.0	2.0	16.0	0.5	14.0	2.0	3.2	0.5	51.0	2.0
P-636-97	59.0	2.0	19.0	0.6	330.0	2.0	89.0	0.5	71.0	2.0	16.0	0.5	260.0	2.0
P-636-97	110.0	2.0	35.0	0.6	600.0	2.0	160.0	0.5	130.0	2.0	29.0	0.5	450.0	2.0
P-636-97	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	84.5	2.0	27.0	0.6	465.0	2.0	124.5	0.5	100.5	2.0	22.5	0.5	355.0	2.0
P-639-97	34.0	5.0	11.0	1.6	380.0	5.0	100.0	1.3	180.0	5.0	41.0	1.2	470.0	5.0
P-639-97	31.0	5.0	9.6	1.6	350.0	5.0	93.0	1.3	160.0	5.0	38.0	1.2	430.0	5.0
	32.5	5.0	10.3	1.6	365.0	5.0	96.5	1.3	170.0	5.0	39.5	1.2	450.0	5.0
P-639-97	29.0	5.0	9.1	1.6	340.0	5.0	91.0	1.3	150.0	5.0	34.0	1.2	380.0	5.0
P-639-97	60.0	5.0	19.0	1.6	670.0	5.0	180.0	1.3	460.0	5.0	100	1.2	980.0	5.0
P-639-97	1.9	1.0	0.6	0.3	29.0	1.0	7.8	0.3	5.5	1.0	1.3	0.2	18.0	1.0
P-639-97	2.0	1.0	0.6	0.3	29.0	1.0	7.7	0.3	5.3	1.0	1.2	0.2	18.0	1.0
	2.0	1.0	0.6	0.3	29.0	1.0	7.8	0.3	5.4	1.0	1.3	0.2	18.0	1.0
P-639-97	0.0	4.0	0.0	1.3	27.0	4.0	7.3	1.1	4.7	4.0	1.1	0.9	15.0	4.0
P-639-97	2.2	1.0	0.7	0.3	33.0	1.0	8.8	0.3	14.0	1.0	3.2	0.2	40.0	1.0
P-639-97	1.6	1.0	0.5	0.3	22.0	1.0	5.8	0.3	1.4	1.0	0.3	0.2	4.3	1.0
P-639-97	1.6	1.0	0.5	0.3	22.0	1.0	5.7	0.3	1.4	1.0	0.3	0.2	4.1	1.0

Maine DEP Spill #	o - Xylene				Total Xylenes				Nonane					
	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb
	18.0	0.2	27.0	1.0	6.3	0.2	103.5	1.0	24.3	0.2	6.3	1.0	1.2	0.2
P-636-97	20.0	0.2	31.0	1.0	7.1	0.2	116.0	1.0	27.1	0.2	13.0	1.0	2.5	0.2
P-636-97	19.0	0.2	31.0	1.0	7.1	0.2	115.0	1.0	26.1	0.2	12.0	1.0	2.3	0.2
	19.5	0.2	31.0	1.0	7.1	0.2	115.5	1.0	26.6	0.2	12.5	1.0	2.4	0.2
P-636-97	0.6	0.2	1.2	1.0	0.3	0.2	3.9	1.0	0.9	0.2	0.0	1.0	0.0	0.2
P-636-97	18.0	0.2	27.0	1.0	6.3	0.2	104.0	1.0	24.3	0.2	24.0	1.0	4.6	0.2
P-636-97	13.0	0.2	21.0	1.0	4.9	0.2	79.0	1.0	17.9	0.2	22.0	1.0	4.2	0.2
P-636-97	14.0	0.2	21.0	1.0	4.7	0.2	81.0	1.0	18.7	0.2	11.0	1.0	2.1	0.2
P-636-97	21.0	0.9	32.0	4.0	7.3	0.9	124.0	4.0	28.3	0.9	9.3	4.0	1.8	0.8
P-636-97	12.0	0.5	20.0	2.0	4.7	0.5	71.0	2.0	16.7	0.5	21.0	2.0	4.0	0.4
P-636-97	59.0	0.5	89.0	2.0	21.0	0.5	349.0	2.0	80.0	0.5	15.0	2.0	2.8	0.4
P-636-97	100.0	0.5	160.0	2.0	37.0	0.5	610.0	2.0	137	0.5	29.0	2.0	5.6	0.4
P-636-97	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	79.5	0.5	124.5	2.0	29.0	0.5	479.5	2.0	108.5	0.5	22.0	2.0	4.2	0.4
P-639-97	110.0	1.2	220.0	5.0	50.0	1.2	690.0	5.0	160	1.2	390.0	5.0	75.0	1.0
P-639-97	100.0	1.2	200.0	5.0	47.0	1.2	630.0	5.0	147	1.2	370.0	5.0	71.0	1.0
	105.0	1.2	210.0	5.0	48.5	1.2	660.0	5.0	153.5	1.2	380.0	5.0	73.0	1.0
P-639-97	88.0	1.2	180.0	5.0	42.0	1.2	560.0	5.0	130	1.2	340.0	5.0	64.0	1.0
P-639-97	230.0	1.2	470.0	5.0	110.0	1.2	1450.0	5.0	340	1.2	830.0	5.0	160	1.0
							0.0		0.0					
P-639-97	4.0	0.2	8.1	1.0	1.9	0.2	26.1	1.0	5.9	0.2	13.0	1.0	2.5	0.2
P-639-97	4.1	0.2	8.5	1.0	2.0	0.2	26.5	1.0	6.1	0.2	13.0	1.0	2.4	0.2
	4.1	0.2	8.3	1.0	2.0	0.2	26.3	1.0	6.0	0.2	13.0	1.0	2.5	0.2
P-639-97	3.5	0.9	7.0	4.0	1.6	0.9	22.0	4.0	5.1	0.9	13.0	4.0	2.4	0.8
P-639-97	9.2	0.2	20.0	1.0	4.7	0.2	60.0	1.0	13.9	0.2	38.0	1.0	7.3	0.2
							0.0		0.0					
P-639-97	1.0	0.2	1.8	1.0	0.4	0.2	6.1	1.0	1.4	0.2	3.0	1.0	0.6	0.2
P-639-97	1.0	0.2	1.9	1.0	0.4	0.2	6.0	1.0	1.4	0.2	2.5	1.0	0.5	0.2

Maine DEP Spill #	Naphthalene				TPH as Diesel				TPH as Kerosene				Screening PID Data
	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	
	ug/c.m.	ug/c.m.	ppb	ppb	mg/c.m.	mg/c.m.	ppm	ppm	mg/c.m.	mg/c.m.	ppm	ppm	ppm
	2.1	1.0	0.4	0.2									
P-636-97	3.0	1.0	0.6	0.2	0.0	3.3	0.0	0.4	na	na	na	na	0.99
P-636-97	2.8	1.0	0.5	0.2	0.0	3.2	0.0	0.4	na	na	na	na	
	2.9	1.0	0.6	0.2	0.0	3.3	0.0	0.4					
P-636-97	0.0	1.0	0.0	0.2	0.0	3.2	0.0	0.4	na	na	na	na	
P-636-97	2.3	1.0	0.5	0.2	0.0	3.4	0.0	0.4	na	na	na	na	0
P-636-97	5.6	1.0	1.1	0.2	0.0	3.2	0.0	0.4	na	na	na	na	0
P-636-97	1.4	1.0	0.3	0.2	0.0	3.2	0.0	0.4	na	na	na	na	0
P-636-97	3.2	4.0-TR	0.6	0.76-TR	0.0	6.7	0.0	0.7	na	na	na	na	0
P-636-97	15.0	2.0	2.9	0.4	0.0	3.3	0.0	0.4	na	na	na	na	0
P-636-97	5.2	2.0	1.0	0.4	0.0	3.3	0.0	0.4	na	na	na	na	
P-636-97	11.0	2.0	2.1	0.4	0.0	3.1	0.0	0.3	na	na	na	na	16
P-636-97	na	na	na	na	0.0	3.1	0.0	0.3	na	na	na	na	
	8.1	2.0	1.5	0.4	0.0	3.2	0.0	0.3					
P-639-97	0.0	5.0	0.0	1.0	na	na	na	na	na	na	na	na	
P-639-97	0.0	5.0	0.0	1.0	na	na	na	na	na	na	na	na	
	0.0	5.0	0.0	1.0									6.8
P-639-97	0.0	5.0	0.0	1.0	na	na	na	na	na	na	na	na	
P-639-97	7.1	5.0	1.4	1.0	na	na	na	na	na	na	na	na	31
P-639-97	1.5	1.0	0.3	0.2	0.0	7.1	0.0	0.8	na	na	na	na	
P-639-97	1.7	1.0	0.3	0.2	0.0	7.1	0.0	0.8	na	na	na	na	
	1.6	1.0	0.3	0.2	0.0	7.1	0.0	0.8					0
P-639-97	0.0	4.0	0.0	0.8	0.0	17.0	0.0	1.9	na	na	na	na	0
P-639-97	2.7	1.0	0.5	0.2	0.0	7.4	0.0	0.8	na	na	na	na	0
P-639-97	1.0	1.0	0.2	0.2	0.0	3.7	0.0	0.4	na	na	na	na	0
P-639-97	1.3	1.0	0.3	0.2	0.0	3.8	0.0	0.4	na	na	na	na	0

Maine DEP Spill #	Quality Control	1,2-Dichloroethane-D4	Toluene-D8	Bromofluorobenzene	% Recovery within Method Limits (70-130)
P-636-97		102.0	102.0	98.8	yes
P-636-97		108.0	101.0	97.3	yes
P-636-97		94.8	99.3	102.0	yes
P-636-97	Method Blanks - ND	129	99.4	95.2	
P-636-97		127	98.3	95.2	
P-636-97		126	99.4	96.1	
P-636-97	Method Blanks - ND	116	100	101	yes
P-636-97		117	100	101	yes
P-636-97		118	101	102	yes
P-636-97		119	101	102	yes
P-636-97					
P-639-97	Method Blank - ND	82.4	99.3	104.0	yes
P-639-97		88.5	98.4	103.0	yes
P-639-97		82.7	102.0	101.0	yes
P-639-97		85.3	98.8	103.0	yes
P-639-97	Method Blanks - ND	111.0	97.7	91.5	yes
P-639-97		105.0	99.7	91.5	yes
P-639-97		104.0	99.7	89.0	yes
P-639-97		98.5	98.6	92.7	yes
P-639-97	Method Blanks - ND	112.0	95.4	101.0	yes
P-639-97		108.0	95.9	102.0	yes

Maine DEP Spill #	Town	Investigation Start	Date of Spill or Date Spill Discovered	Type of Spill	Location of Spill	Size of Spill (gallons)	Cause of Spill	Areas Impacted
P-639-97	Minot	11/17/97	11/10/97	no.2 fuel oil	basement sub-slab	250	copper line leak over time	sub-slab, perimeter/underdrain, sump, swamp
P-639-97	Minot	11/17/97	11/10/97	no.2 fuel oil	basement sub-slab	250	copper line leak over time	sub-slab, perimeter/underdrain, sump, swamp
A-499-97	Hallowell	12/23/97	11/30/97	no.2 fuel oil	basement	80	dripping filter for 3 days	basement floor drains, sump, backyard
A-499-97	Hallowell	12/23/97	11/30/97	no.2 fuel oil	basement	80	dripping filter for 3 days	basement floor drains, sump, backyard
A-499-97	Hallowell	12/23/97	11/30/97	no.2 fuel oil	basement	80	dripping filter for 3 days	basement floor drains, sump, backyard
A-499-97	Hallowell	12/23/97	11/30/97	no.2 fuel oil	basement	80	dripping filter for 3 days	basement floor drains, sump, backyard
A-499-97	Hallowell	12/23/97	11/30/97	no.2 fuel oil	basement	80	dripping filter for 3 days	basement floor drains, sump, backyard
A-499-97	Hallowell	12/23/97	11/30/97	no.2 fuel oil	basement	80	dripping filter for 3 days	basement floor drains, sump, backyard
A-499-97	Hallowell	12/23/97	11/30/97	no.2 fuel oil	basement	80	dripping filter for 3 days	basement floor drains, sump, backyard
A-499-97	Hallowell	12/23/97	11/30/97	no.2 fuel oil	basement	80	dripping filter for 3 days	basement floor drains, sump, backyard
A-499-97	Hallowell	12/23/97	11/30/97	no.2 fuel oil	basement	80	dripping filter for 3 days	basement floor drains, sump, backyard
A-499-97	Hallowell	12/23/97	11/30/97	no.2 fuel oil	basement	80	dripping filter for 3 days	basement floor drains, sump, backyard
P-003-98	Auburn	01/28/98	01/02/98	no.2 fuel oil	basement	64	abandoned fill line	basement, sump (sewer), sub-slab
P-003-98	Auburn	01/28/98	01/02/98	no.2 fuel oil	basement	64	abandoned fill line	basement, sump (sewer), sub-slab
P-003-98	Auburn	01/28/98	01/02/98	no.2 fuel oil	basement	64	abandoned fill line	basement, sump (sewer), sub-slab
P-003-98	Auburn	01/28/98	01/02/98	no.2 fuel oil	basement	64	abandoned fill line	basement, sump (sewer), sub-slab
P-003-98	Auburn	01/28/98	01/02/98	no.2 fuel oil	basement	64	abandoned fill line	basement, sump (sewer), sub-slab
P-003-98	Auburn	01/28/98	01/02/98	no.2 fuel oil	basement	64	abandoned fill line	basement, sump (sewer), sub-slab
P-003-98	Auburn	01/28/98	01/02/98	no.2 fuel oil	basement	64	abandoned fill line	basement, sump (sewer), sub-slab

Maine DEP Spill #	Odor Present at Time of Sampling?	Health Effects	Other Indoor Sources	House Type	Attached Garage	Foundation	Year Built
P-639-97	no	yes	oil tank	single, 1-story	no	basement	1986 or later
P-639-97	no	yes	oil tank	single, 1-story	no	basement	1986 or later
A-499-97	yes to resident	yes	paint (11/97), go-cart, 2 oil tanks	single, 2-story	yes	basement	1940-1949
A-499-97	yes to resident	yes	paint (11/97), go-cart, 2 oil tanks	single, 2-story	yes	basement	1940-1949
	yes to resident						
A-499-97	yes to resident	yes	paint (11/97), go-cart, 2 oil tanks	single, 2-story	yes	basement	1940-1949
A-499-97	yes to resident	yes	paint (11/97), go-cart, 2 oil tanks	single, 2-story	yes	basement	1940-1949
A-499-97	yes to resident	yes	paint (11/97), go-cart, 2 oil tanks	single, 2-story	yes	basement	1940-1949
A-499-97			paint (11/97), go-cart, 2 oil tnks, kerosene heater in January	single, 2-story	yes	basement	1940-1949
A-499-97			paint (11/97), go-cart, 2 oil tnks, kerosene heater in January	single, 2-story	yes	basement	1940-1949
A-499-97			paint (11/97), go-cart, 2 oil tnks, kerosene heater in January	single, 2-story	yes	basement	1940-1949
			paint (11/97), go-cart, 2 oil tnks, kerosene heater in January				
A-499-97			paint (11/97), go-cart, 2 oil tnks, kerosene heater in January	single, 2-story	yes	basement	1940-1949
A-499-97			paint (11/97), go-cart, 2 oil tnks, kerosene heater in January	single, 2-story	yes	basement	1940-1949
P-003-98	yes- laundry, cellar	no	paint closet in own room	single, 2-story duplex	no	basement	early 1900
P-003-98	yes- laundry, cellar	no	paint closet in own room	single, 2-story duplex	no	basement	early 1900
P-003-98	yes-laundry, hallway, cellar		paint closet in own room	single, 2-story duplex	no	basement	early 1900
P-003-98	yes-laundry, hallway, cellar		paint closet in own room	single, 2-story duplex	no	basement	early 1900
P-003-98	yes-laundry, hallway, cellar		paint closet in own room	single, 2-story duplex	no	basement	early 1900
P-003-98	yes-laundry, hallway, cellar		paint closet in own room	single, 2-story duplex	no	basement	early 1900
P-003-98	yes-laundry, hallway, cellar		paint closet in own room	single, 2-story duplex	no	basement	early 1900

Maine DEP Spill #	Recent Renovations (in last year)	Description of Area Surrounding House	Traffic Level Near House	Potential Outdoor Sources	Heat Source
P-639-97	no	lawn	quiet	perimeter drain "fouled", sump pumped to swamp, radon fan	oil
P-639-97	no	lawn	quiet	perimeter drain "fouled", sump pumped to swamp, radon fan	oil
A-499-97	new carpet 2nd fl. 11/97	open, fields	busy	sump to backyard, radon fan exhaust	oil
A-499-97	new carpet 2nd fl. 11/97	open, fields	busy	sump to backyard, radon fan exhaust	oil
A-499-97	new carpet 2nd fl. 11/97	open, fields	busy	sump to backyard, radon fan exhaust	oil
A-499-97	new carpet 2nd fl. 11/97	open, fields	busy	sump to backyard, radon fan exhaust	oil
A-499-97	new carpet 2nd fl. 11/97	open, fields	busy	sump to backyard, radon fan exhaust	oil
A-499-97	new carpet 2nd fl. 11/97	open, fields	busy	sump to backyard, radon fan exhaust	oil
A-499-97	new carpet 2nd fl. 11/97	open, fields	busy	sump to backyard, radon fan exhaust	oil
A-499-97	new carpet 2nd fl. 11/97	open, fields	busy	sump to backyard, radon fan exhaust	oil
A-499-97	new carpet 2nd fl. 11/97	open, fields	busy	sump to backyard, radon fan exhaust	oil
A-499-97	new carpet 2nd fl. 11/97	open, fields	busy	sump to backyard, radon fan exhaust	oil
P-003-98	ongoing-porch summer	lawn	quiet	adjacent homes oil heat, fan exhaust	gas
P-003-98	ongoing-porch summer	lawn	quiet	adjacent homes oil heat, fan exhaust	gas
P-003-98	ongoing-porch summer	lawn	quiet	adjacent homes oil heat, fan exhaust	gas
P-003-98	ongoing-porch summer	lawn	quiet	adjacent homes oil heat, fan exhaust	gas
P-003-98	ongoing-porch summer	lawn	quiet	adjacent homes oil heat, fan exhaust	gas
P-003-98	ongoing-porch summer	lawn	quiet	adjacent homes oil heat, fan exhaust	gas
P-003-98	ongoing-porch summer	lawn	quiet	adjacent homes oil heat, fan exhaust	gas

Maine DEP Spill #	Furnace Type	Any Secondary Heating Source(s) Present?	Gas Stove	Air Cleaners	Air Conditioning	Smoking (average # of cigarettes per day)	Meteorologic Data
P-639-97	hot water	woodstove-rarely used	no	HEPA	kitchen	no	-13 degrees C, sunny, some snow, very cold & windy
P-639-97	hot water	woodstove-rarely used	no	HEPA	kitchen	no	-13 degrees C, sunny, some snow, very cold & windy
A-499-97	central warm air	no	no	no	no	no	4 inches snow
A-499-97	central warm air	no	no	no	no	no	4 inches snow
A-499-97	central warm air	no	no	no	no	no	4 inches snow
A-499-97	central warm air	no	no	no	no	no	4 inches snow
A-499-97	central warm air	no	no	no	no	no	4 inches snow
A-499-97	central warm air	kerosene heater Jan 8-15	no	no	no	no	Jan 8-15 storm flooded basement, oil back
A-499-97	central warm air	kerosene heater Jan 8-15	no	no	no	no	Jan 8-15 storm flooded basement, oil back
A-499-97	central warm air	kerosene heater Jan 8-15	no	no	no	no	Jan 8-15 storm flooded basement, oil back
A-499-97	central warm air	kerosene heater Jan 8-15	no	no	no	no	Jan 8-15 storm flooded basement, oil back
A-499-97	central warm air	kerosene heater Jan 8-15	no	no	no	no	Jan 8-15 storm flooded basement, oil back
P-003-98	hot water	no	yes	no	no	no	25 F, clear and cold
P-003-98	hot water	no	yes	no	no	no	25 F, clear and cold
P-003-98	hot water	no	yes	no	no	no	
P-003-98	hot water	no	yes	no	no	no	
P-003-98	hot water	no	yes	no	no	no	
P-003-98	hot water	no	yes	no	no	no	
P-003-98	hot water	no	yes	no	no	no	

Maine DEP Spill #	Activities during sampling	Sample Location	DEP Staff Conducting Sampling	DEP Sample #
P-639-97	heat, cleaned kitchen w/ ammonia and water, post-sub-slab vent. System, pumping yard w/ rain,	Basement	B. Lambert	572
P-639-97	heat, cleaned kitchen w/ ammonia and water, post-sub-slab vent. System, pumping yard w/ rain,			
		Basement Average		
A-499-97	warm air heat, post-(sorbent pads, sub-slab wells, radon fan, use of odorgon)	Basement, near sump	D. Davis	#1/00369
A-499-97	warm air heat, post-(sorbent pads, sub-slab wells, radon fan, use of odorgon)	Basement, near sump	D. Davis	#2/00184 Fld.Dup.
	warm air heat, post-(sorbent pads, sub-slab wells, radon fan, use of odorgon)	Basement, near sump Average		Average
A-499-97	warm air heat, post-(sorbent pads, sub-slab wells, radon fan, use of odorgon)	Living Area, return duct	D. Davis	#3/00469
A-499-97	warm air heat, post-(sorbent pads, sub-slab wells, radon fan, use of odorgon)	Outside	D. Davis	#4/00351
A-499-97	warm air heat, post-(sorbent pads, sub-slab wells, radon fan, use of odorgon)			
		Outside Average		
A-499-97	warm air heat, post-(sorbent pads, sub-slab wells, radon fan, use of odorgon)	Basement, near sump	D. Davis	588
A-499-97	warm air heat, post-(sorbent pads, sub-slab wells, radon fan, use of odorgon)	Outside	D. Davis	523
A-499-97	warm air heat, post-(sorbent pads, sub-slab wells, radon fan, use of odorgon)			
	warm air heat, post-(sorbent pads, sub-slab wells, radon fan, use of odorgon)	Outside Average		
A-499-97	warm air heat, post-(sorbent pads, sub-slab wells, radon fan, use of odorgon)	Living Area, return duct	D. Davis	532
A-499-97	warm air heat, post-(sorbent pads, sub-slab wells, radon fan, use of odorgon)	Living Area, other	D. Davis	597
P-003-98	heat, post-vactor/clean/excav., fans shut-off 5 min. prior	Basement	P. Eremita/D. Bailey	#5/00103
P-003-98	heat, post-vactor/clean/excav., fans shut-off 5 min. prior			
		Basement Average		
P-003-98	window / 2-radon fans running?	Basement	D. Bailey	#1/01102
P-003-98	window / 2-radon fans running?	Basement	D. Bailey	#4/00451 Fld. Dup
		Basement Average		Average
P-003-98	window / 2-radon fans running?	Laundry	D. Bailey	#2/00482
P-003-98	window / 2-radon fans running?	Outside	D. Bailey	#3/00304
P-003-98	window / 2-radon fans running?			
		Outside Average		

Trial Period Study Database

Maine Department of Environmental Protection

Maine DEP Spill #	Lab Sample #	Sample Collection Date	Sample Type	Analytical Method	tert Butyl Methyl Ether				Hexane			
					result	R.L.	result	R.L.	result	R.L.	result	R.L.
					ug/c.m.	ug/c.m.	ppb	ppb	ug/c.m.	ug/c.m.	ppb	ppb
P-639-97	P9800422-3	12-Mar-98	Summa 24 hour	TO-14 & TPH	4.6	1.0	1.3	0.3	3.3	1.0	0.9	0.3
P-639-97	P9800422-3 Dup				na	na	na	na	na	na	na	na
				Average TPH								
A-499-97	P9800018-1	23-Dec-97	Summa 24 hour	TO-14 & TPH	5.4	1.0	1.5	0.3	3.3	1.0	0.9	0.3
A-499-97	P9800018-2	23-Dec-97	Summa 24 hour	TO-14 & TPH	5.3	1.0	1.5	0.3	3.2	1.0	0.9	0.3
				Average	5.4	1.0	1.5	0.3	3.3	1.0	0.9	0.3
A-499-97	P9800018-3	23-Dec-97	Summa 24 hour	TO-14 & TPH	18.0	2.0	5.0	0.6	13.0	2.0	3.7	0.6
A-499-97	P9800018-4	23-Dec-97	Summa 24 hour	TO-14 & TPH	0.0	2.0	0.0	0.6	0.0	2.0	0.0	0.6
A-499-97	P9800018-4 Dup				0.0	2.0	0.0	0.6	0.0	2.0	0.0	0.6
				Average	0.0	2.0	0.0	0.6	0.0	2.0	0.0	0.6
A-499-97	P9800291-1	11-Feb-98	Summa 24 hour	TO-14 & TPH	10.0	1.0	2.8	0.3	9.0	1.0	2.5	0.3
A-499-97	P9800291-2	11-Feb-98	Summa 24 hour	TO-14 & TPH	1.3	1.0	0.4	0.3	3.2	1.0	0.9	0.3
A-499-97	P9800291-2 Dup				1.2	1.0	0.3	0.3	3.0	1.0	0.9	0.3
				Average	1.3	1.0	0.3	0.3	3.1	1.0	0.9	0.3
A-499-97	P9800291-3	11-Feb-98	Summa 24 hour	TO-14 & TPH	22.0	1.0	6.2	0.3	24.0	1.0	6.8	0.3
A-499-97	P9800291-4	11-Feb-98	Summa 24 hour	TO-14 & TPH	32.0	1.0	9.0	0.3	32.0	1.0	9.0	0.3
P-003-98	P9800213-5	28-Jan-98	Summa 24 hour	TO-14 & TPH	58.0	1.0	16.0	0.3	17.0	1.0	4.8	0.3
P-003-98	P9800213-5 Dup				na	na	na	na	na	na	na	na
				Average TPH								
P-003-98	P9800213-1	3-Feb-98	Summa 24 hour	TO-14 & TPH	100.0	1.0	29.0	0.3	34.0	1.0	9.8	0.3
P-003-98	P9800213-4	3-Feb-98	Summa 24 hour	TO-14 & TPH	130.0	1.0	36.0	0.3	44.0	1.0	12.0	0.3
				Average	115.0	1.0	32.5	0.3	39.0	1.0	10.9	0.3
P-003-98	P9800213-2	3-Feb-98	Summa 24 hour	TO-14 & TPH	11.0	1.0	3.0	0.3	3.3	1.0	0.9	0.3
P-003-98	P9800213-3	3-Feb-98	Summa 24 hour	TO-14 & TPH	13.0	1.0	3.6	0.3	2.2	1.0	0.6	0.3
P-003-98	P9800213-3 Dup				13.0	1.0	3.5	0.3	2.1	1.0	0.6	0.3
				Average	13.0	1.0	3.6	0.3	2.2	1.0	0.6	0.3

Maine DEP Spill #	Benzene				Toluene				Ethyl Benzene				m & p - Xylenes	
	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.
P-639-97	1.5	1.0	0.5	0.3	7.6	1.0	2.0	0.3	1.5	1.0	0.4	0.2	5.1	1.0
P-639-97	na	na	na	na	na	na	na	na	na	na	na	na	na	na
A-499-97	1.5	1.0	0.5	0.3	10.0	1.0	2.7	0.3	0.9	TR-1	0.2	TR-0.23	3.9	1.0
A-499-97	1.8	1.0	0.6	0.3	9.8	1.0	2.6	0.3	0.8	TR-1	0.2	TR-0.23	3.6	1.0
	1.7	1.0	0.5	0.3	9.9	1.0	2.7	0.3	0.9		0.2		3.8	1.0
A-499-97	2.5	2.0	0.8	0.6	22.0	2.0	5.8	0.5	2.1	2.0	0.5	0.5	8.2	2.0
A-499-97	1.2	TR-2	0.4	TR-0.63	3.8	2.0	1.0	0.5	0.0	2.0	0.0	0.5	1.1	TR-2
A-499-97	1.1	TR-2	0.3	TR-0.63	3.8	2.0	1.0	0.5	0.0	2.0	0.0	0.5	1.2	TR-2
	1.2		0.3		3.8	2.0	1.0	0.5	0.0	2.0	0.0	0.5	1.2	
A-499-97	3.3	1.0	1.0	0.3	21.0	1.0	5.5	0.3	2.1	1.0	0.5	0.2	8.1	1.0
A-499-97	1.1	1.0	0.4	0.3	2.0	1.0	0.5	0.3	0.0	1.0	0.0	0.2	1.3	1.0
A-499-97	1.1	1.0	0.4	0.3	2.0	1.0	0.5	0.3	0.0	1.0	0.0	0.2	1.3	1.0
	1.1	1.0	0.4	0.3	2.0	1.0	0.5	0.3	0.0	1.0	0.0	0.2	1.3	1.0
A-499-97	7.0	1.0	2.2	0.3	44.0	1.0	12.0	0.3	4.3	1.0	1.0	0.2	16.0	1.0
A-499-97	9.0	1.0	2.8	0.3	55.0	1.0	15.0	0.3	6.5	1.0	1.5	0.2	25.0	1.0
P-003-98	6.0	1.0	1.9	0.3	30.0	1.0	8.0	0.3	4.8	1.0	1.1	0.2	16.0	1.0
P-003-98	na	na	na	na	na	na	na	na	na	na	na	na	na	na
P-003-98	13.0	1.0	4.1	0.3	67.0	1.0	18.0	0.3	12.0	1.0	2.7	0.2	38.0	1.0
P-003-98	14.0	1.0	4.5	0.3	74.0	1.0	20.0	0.3	13.0	1.0	2.9	0.2	42.0	1.0
	13.5	1.0	4.3	0.3	70.5	1.0	19.0	0.3	12.5	1.0	2.8	0.2	40.0	1.0
P-003-98	4.1	1.0	1.3	0.3	21.0	1.0	5.7	0.3	4.0	1.0	0.9	0.2	11.0	1.0
P-003-98	3.1	1.0	1.0	0.3	12.0	1.0	3.2	0.3	2.8	1.0	0.6	0.2	10.0	1.0
P-003-98	3.0	1.0	0.9	0.3	11.0	1.0	3.0	0.3	2.5	1.0	0.6	0.2	9.5	1.0
	3.1	1.0	1.0	0.3	11.5	1.0	3.1	0.3	2.7	1.0	0.6	0.2	9.8	1.0

Maine DEP Spill #			o - Xylene				Total Xylenes				Nonane			
	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb
P-639-97	1.2	0.2	3.1	1.0	0.7	0.2	8.2	1.0	1.9	0.2	5.6	1.0	1.1	0.2
P-639-97	na	na	na	na	na	na	0.0	na	0.0	na	na	na	na	na
							0.0		0.0					
A-499-97	0.9	0.2	1.3	1.0	0.3	0.2	5.2	1.0	1.2	0.2	3.1	1.0	0.6	0.2
A-499-97	0.8	0.2	1.4	1.0	0.3	0.2	5.0	1.0	1.2	0.2	3.7	1.0	0.7	0.2
	0.9	0.2	1.4	1.0	0.3	0.2	5.1	1.0	1.2	0.2	3.4	1.0	0.7	0.2
A-499-97	1.9	0.5	2.9	2.0	0.7	0.5	11.1	2.0	2.6	0.5	2.4	2.0	0.5	0.4
A-499-97	0.3	TR-0.46	0.0	2.0	0.0	0.5	1.1	2.0	0.3	0.5	0.0	2.0	0.0	0.4
A-499-97	0.3	TR-0.46	0.0	2.0	0.0	0.5	1.2	2.0	0.3	0.5	0.0	2.0	0.0	0.4
	0.3		0.0	2.0	0.0	0.5	1.2	2.0	0.3	0.5	0.0	2.0	0.0	0.4
							0.0		0.0					
A-499-97	1.9	0.2	2.5	1.0	0.6	0.2	10.6	1.0	2.5	0.2	5.1	1.0	1.0	0.2
A-499-97	0.3	0.2	0.0	1.0	0.0	0.2	1.3	1.0	0.3	0.2	1.7	1.0	0.3	0.2
A-499-97	0.3	0.2	0.0	1.0	0.0	0.2	1.3	1.0	0.3	0.2	1.6	1.0	0.3	0.2
	0.3	0.2	0.0	1.0	0.0	0.2	1.3	1.0	0.3	0.2	1.7	1.0	0.3	0.2
A-499-97	3.7	0.2	5.0	1.0	1.1	0.2	21.0	1.0	4.8	0.2	2.3	1.0	0.4	0.2
A-499-97	5.7	0.2	7.7	1.0	1.8	0.2	32.7	1.0	7.5	0.2	2.6	1.0	0.5	0.2
							0.0		0.0					
P-003-98	3.6	0.2	6.6	1.0	1.5	0.2	22.6	1.0	5.1	0.2	8.2	1.0	1.6	0.2
P-003-98	na	na	na	na	na	na	0.0	na	0.0	na	na	na	na	na
							0.0		0.0					
P-003-98	8.9	0.2	15.0	1.0	3.3	0.2	53.0	1.0	12.2	0.2	12.0	1.0	2.3	0.2
P-003-98	9.7	0.2	15.0	1.0	3.5	0.2	57.0	1.0	13.2	0.2	13.0	1.0	2.6	0.2
	9.3	0.2	15.0	1.0	3.4	0.2	55.0	1.0	12.7	0.2	12.5	1.0	2.5	0.2
P-003-98	2.6	0.2	4.4	1.0	1.0	0.2	15.4	1.0	3.6	0.2	2.1	1.0	0.4	0.2
P-003-98	2.4	0.2	4.6	1.0	1.1	0.2	14.6	1.0	3.5	0.2	1.1	1.0	0.2	0.2
P-003-98	2.2	0.2	4.2	1.0	1.0	0.2	13.7	1.0	3.2	0.2	1.0	1.0	0.2	0.2
	2.3	0.2	4.4	1.0	1.0	0.2	14.2	1.0	3.3	0.2	1.1	1.0	0.2	0.2
							0.0		0.0					

Maine DEP Spill #	Naphthalene				TPH as Diesel				TPH as Kerosene				Screening PID Data
	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result mg/c.m.	R.L. mg/c.m.	result ppm	R.L. ppm	result mg/c.m.	R.L. mg/c.m.	result ppm	R.L. ppm	ppm
P-639-97	1.5	1.0	0.3	0.2	0.0	3.6	0.0	0.4	na	na	na	na	0
P-639-97	na	na	na	na	0.0	3.6	0.0	0.4	na	na	na	na	
					0.0	3.6	0.0	0.4					
A-499-97	1.8	1.0	0.3	0.2	0.0	3.4	0.0	0.4	na	na	na	na	na
A-499-97	2.1	1.0	0.4	0.2	0.0	3.4	0.0	0.4	na	na	na	na	
	2.0	1.0	0.4	0.2	0.0	3.4	0.0	0.4					
A-499-97	1.3	TR-2	0.3	TR-0.38	0.0	6.7	0.0	0.7	na	na	na	na	
A-499-97	0.0	2.0	0.0	0.4	0.0	3.4	0.0	0.4	na	na	na	na	
A-499-97	0.0	2.0	0.0	0.4	na	na	na	na	na	na	na	na	
	0.0	2.0	0.0	0.4									
A-499-97	0.0	1.0	0.0	0.2	0.0	3.2	0.0	0.4	na	na	na	na	na
A-499-97	0.8	TR-1	0.2	TR-0.19	0.0	3.3	0.0	0.4	na	na	na	na	
A-499-97	0.7	TR-1	0.1	TR-0.19	na	na	na	na	na	na	na	na	
	0.7		0.1										
A-499-97	0.0	1.0	0.0	0.2	0.0	6.5	0.0	0.7	na	na	na	na	
A-499-97	2.5	1.0	0.5	0.2	0.0	3.1	0.0	0.3	na	na	na	na	
P-003-98	2.8	1.0	0.5	0.2	0.0	3.3	0.0	0.4	na	na	na	na	8
P-003-98	na	na	na	na	0.0	3.3	0.0	0.4	na	na	na	na	
					0.0	3.3	0.0	0.4					
P-003-98	5.1	1.0	1.0	0.2	0.0	3.7	0.0	0.4	na	na	na	na	na
P-003-98	1.6	1.0	0.3	0.2	0.0	3.6	0.0	0.4	na	na	na	na	
	3.4	1.0	0.6	0.2	0.0	3.7	0.0	0.4					
P-003-98	0.9	TR-1	0.2	TR-0.19	0.0	3.6	0.0	0.4	na	na	na	na	
P-003-98	0.0	1.0	0.0	0.2	0.0	3.4	0.0	0.4	na	na	na	na	
P-003-98	0.0	1.0	0.0	0.2	na	na	na	na	na	na	na	na	
	0.0	1.0	0.0	0.2									

Maine DEP Spill #	Quality Control	1,2-Dichloroethane-D4	Toluene-D8	Bromofluorobenzene	% Recovery within Method Limits (70-130)
P-639-97		109.0	95.1	99.8	yes
P-639-97					
A-499-97	Method Blanks - ND	23-Dec-97	111.0	103.0	89.5
A-499-97		23-Dec-97	109.0	102.0	95.2
A-499-97		23-Dec-97	101.0	103.0	94.2
A-499-97		23-Dec-97	98.9	106.0	94.8
A-499-97			101.0	105.0	90.1
A-499-97	Method Blanks - ND				
A-499-97					
A-499-97					
A-499-97					
A-499-97					
P-003-98	Method Blanks - ND	103.0	104.0	93.6	yes
P-003-98					
P-003-98		89.3	102.0	98.1	yes
P-003-98		126.0	103.0	91.2	yes
P-003-98		82.2	102.0	98.1	yes
P-003-98		111.0	105.0	92.7	yes
P-003-98		117.0	105.0	92.5	yes

Maine DEP Spill #	Town	Investigation Start	Date of Spill or Date Spill Discovered	Type of Spill	Location of Spill	Size of Spill (gallons)	Cause of Spill	Areas Impacted
P-003-98	Auburn	01/28/98	01/02/98	no.2 fuel oil	basement	64	abandoned fill line	basement, sump (sewer), sub-slab
P-003-98	Auburn	01/28/98	01/02/98	no.2 fuel oil	basement	64	abandoned fill line	basement, sump (sewer), sub-slab
P-003-98	Auburn	01/28/98	01/02/98	no.2 fuel oil	basement	64	abandoned fill line	basement, sump (sewer), sub-slab
P-003-98	Auburn	01/28/98	01/02/98	no.2 fuel oil	basement	64	abandoned fill line	basement, sump (sewer), sub-slab
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
		01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')
P-012-98	Windham	01/12/98	1/9/98	kerosene	outside foundation wall - AST	150.99	iced limb sheared line	interior crawl space (house = 24' X 26')

Maine DEP Spill #	Odor Present at Time of Sampling?	Health Effects	Other Indoor Sources	House Type	Attached Garage	Foundation	Year Built
P-003-98	yes-basement, stairs	no	paint closet in own room	single, 2-story duplex	no	basement	early 1900
P-003-98	yes-basement, stairs	no	paint closet in own room	single, 2-story duplex	no	basement	early 1900
	yes-basement, stairs						
P-003-98	yes-basement, stairs	no	paint closet in own room	single, 2-story duplex	no	basement	early 1900
P-003-98	yes-basement, stairs	no	paint closet in own room	single, 2-story duplex	no	basement	early 1900
P-012-98	yes	yes	kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes	yes	kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes	yes	kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes PEM		kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes PEM		kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes PEM		kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes PEM		kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes PEM		kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes PEM		kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes PEM		kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes all sampling locations		kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes all sampling locations		kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes all sampling locations		kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	yes all sampling locations		kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	mild in crawl space	no	kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	mild in crawl space	no	kerosene monitor	single, 2-story	no	crawl space	1950-1959
	mild in crawl space	no	kerosene monitor	single, 2-story	no	crawl space	1950-1959
P-012-98	mild in crawl space	no	kerosene monitor	single, 2-story	no	crawl space	1950-1959

Maine DEP Spill #	Recent Renovations (in last year)	Description of Area Surrounding House	Traffic Level Near House	Potential Outdoor Sources	Heat Source
P-003-98	ongoing-porch summer	lawn	quiet	adjacent homes oil heat, fan exhaust	gas
P-003-98	ongoing-porch summer	lawn	quiet	adjacent homes oil heat, fan exhaust	gas
P-003-98	ongoing-porch summer	lawn	quiet	adjacent homes oil heat, fan exhaust	gas
P-003-98	ongoing-porch summer	lawn	quiet	adjacent homes oil heat, fan exhaust	gas
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	ceilings, rem.carpet	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	no	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	no	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
	no	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene
P-012-98	no	lawn	heavy	commercial Rt 302, gas sts, ME gas (propane stg/dist), CN Brn. (fuel oil)	kerosene

Maine DEP Spill #	Furnace Type	Any Secondary Heating Source(s) Present?	Gas Stove	Air Cleaners	Air Conditioning	Smoking (average # of cigarettes per day)	Meteorologic Data
P-003-98	hot water	no	yes	no	no	no	40 F, dry, high b.pressure, clear to 30 F, flurries (3/5)
P-003-98	hot water	no	yes	no	no	no	40 F, dry, high b.pressure, clear to 30 F, flurries (3/5)
P-003-98	hot water	no	yes	no	no	no	40 F, dry, high b.pressure, clear to 30 F, flurries (3/5)
P-003-98	hot water	no	yes	no	no	no	40 F, dry, high b.pressure, clear to 30 F, flurries (3/5)
P-012-98	1 monitor	no	no	no	no	no	25 F, dry clear (1/12) light rain (1/13)
P-012-98	1 monitor	no	no	no	no	no	25 F, dry clear (1/12) light rain (1/13)
P-012-98	1 monitor	no	no	no	no	no	25 F, dry clear (1/12) light rain (1/13)
P-012-98	1 monitor	no	no	no	no	no	15 F, low NW wind, clear to overcast w/snow pred.
P-012-98	1 monitor	no	no	no	no	no	15 F, low NW wind, clear to overcast w/snow pred.
P-012-98	1 monitor	no	no	no	no	no	15 F, low NW wind, clear to overcast w/snow pred.
P-012-98	1 monitor	no	no	no	no	no	15 F, low NW wind, clear to overcast w/snow pred.
P-012-98	1 monitor	no	no	no	no	no	15 F, low NW wind, clear to overcast w/snow pred.
P-012-98	1 monitor	no	no	no	no	no	15 F, low NW wind, clear to overcast w/snow pred.
P-012-98	1 monitor	no	no	no	no	no	15 F, low NW wind, clear to overcast w/snow pred.
P-012-98	1 monitor	no	no	no	no	no	overcast, raining (photo log)
P-012-98	1 monitor	no	no	no	no	no	overcast, raining (photo log)
P-012-98	1 monitor	no	no	no	no	no	overcast, raining (photo log)
P-012-98	1 monitor	no	no	no	no	no	overcast, raining (photo log)
P-012-98	1 monitor	no	no	no	no	no	55 F, overcast, rain (heavy at times)
P-012-98	1 monitor	no	no	no	no	no	55 F, overcast, rain (heavy at times)
	1 monitor	no	no	no	no	no	55 F, overcast, rain (heavy at times)
P-012-98	1 monitor	no	no	no	no	no	55 F, overcast, rain (heavy at times)

Maine DEP Spill #	Activities during sampling	Sample Location	DEP Staff Conducting Sampling	DEP Sample #
P-003-98	heat, 2 bsmt fans off prior, 2/13&17/98 - sub-slab soil samples / terpene based bio solvent cleaned floor	Basement	P. Eremita	327
P-003-98	heat, 2 bsmt fans off prior, 2/13&17/98 - sub-slab soil samples / terpene based bio solvent cleaned floor			
		Basement Average		
P-003-98	heat, 2 bsmt fans off prior, 2/13&17/98 - sub-slab soil samples / terpene based bio solvent cleaned floor	Laundry	P. Eremita	207
P-003-98	heat, 2 bsmt fans off prior, 2/13&17/98 - sub-slab soil samples / terpene based bio solvent cleaned floor	Top Bsmt Stairway	P. Eremita	550
P-012-98	moved out, pre-vactoring (extensive remediation / heat?))	Crawlspace	P. Eremita	#3
P-012-98	moved out, pre-vactoring (extensive remediation / heat?))	Crawlspace	P. Eremita	#1/00463
P-012-98	moved out, pre-vactoring (extensive remediation / heat?))	Living Area	P. Eremita	#2/01106
P-012-98	moved out, post-vactoring (extensive remediation / heat?)	Living Area	P. Eremita	22506
P-012-98	moved out, post-vactoring (extensive remediation / heat?)	Living Area	P. Eremita	407
P-012-98	moved out, post-vactoring (extensive remediation / heat?)	Crawlspace	P. Eremita	421
P-012-98	moved out, post-vactoring (extensive remediation / heat?)	Crawlspace	P. Eremita	497
P-012-98	moved out, post-vactoring (extensive remediation / heat?)			
		Crawlspace Average		
P-012-98	moved out, post-vactoring (extensive remediation / heat?)	Outside	P. Eremita	329
P-012-98	moved out, post-vactoring (extensive remediation / heat?)			
		Outside Average		
P-012-98	heat (kerosene monitor), ventilation system installed	Living Area	P. Eremita	S1-503
P-012-98	heat (kerosene monitor), ventilation system installed			
	heat (kerosene monitor), ventilation system installed	Living Area Average		
P-012-98	heat (kerosene monitor), ventilation system installed	Crawlspace (inside vapor bar)	P. Eremita	S2-26
P-012-98	heat (kerosene monitor), ventilation system installed	Crawlspace (outside vapor bar)	P. Eremita	S3-558
P-012-98	heat (kerosene monitor) overnight, radon fan not operating during sampling	Living Area	P. Eremita	296
P-012-98	heat (kerosene monitor) overnight, radon fan not operating during sampling	Living Area	P. Eremita	168/ fld.dup of 296
	heat (kerosene monitor) overnight, radon fan not operating during sampling			
P-012-98	heat (kerosene monitor) overnight, radon fan not operating during sampling	Crawlspace (outside vapor bar)	P. Eremita	514

Trial Period Study Database

Maine Department of Environmental Protection

Maine DEP Spill #	Lab Sample #	Sample Collection Date	Sample Type	Analytical Method	tert Butyl Methyl Ether				Hexane			
					result	R.L.	result	R.L.	result	R.L.	result	R.L.
					ug/c.m.	ug/c.m.	ppb	ppb	ug/c.m.	ug/c.m.	ppb	ppb
P-003-98	P9800415-1	4-Mar-98	Summa 24 hour	TO-14 & TPH	0.9	TR-1	0.2	TR-0.28	0.0	1.0	0.0	0.3
P-003-98	P9800415-1 Dup				0.9	TR-1	0.3	TR-0.28	0.0	1.0	0.0	0.3
				Average	0.9		0.3		0.0	1.0	0.0	0.3
P-003-98	P9800415-2	4-Mar-98	Summa 24 hour	TO-14 & TPH	1.3	1.0	0.4	0.3	2.0	1.0	0.6	0.3
P-003-98	P9800415-3	4-Mar-98	Summa 24 hour	TO-14 & TPH	2.6	1.0	0.7	0.3	0.8	TR-1	0.2	TR-0.28
P-012-98	@9801109-01A	12-Jan-98	Summa 24 hour	TO-14	0.0	0.0	0.0	34.0	0.0	0.0	40.0	34.0
P-012-98	P9800061-1	12-Jan-98	Summa 24 hour	TO-14 & TPH	18.0	10.0	4.9	2.8	140.0	10.0	40.0	2.8
P-012-98	P9800061-2	12-Jan-98	Summa 24 hour	TO-14 & TPH	12.0	4.0	3.4	1.1	76.0	4.0	22.0	1.1
P-012-98	@9801108-01A	14-Jan-98	Summa 24 hour	TO-14	0.0	0.0	0.0	4.9	0.0	0.0	8.1	4.9
P-012-98	P9800076-3	14-Jan-98	Summa 24 hour	TO-14 & TPH	8.8	5.0	2.5	1.4	34.0	5.0	9.8	1.4
P-012-98	@9801108-02A	14-Jan-98	Summa 24 hour	TO-14	0.0	0.0	0.0	4.0	0.0	0.0	14.0	4.0
P-012-98	P9800076-2	14-Jan-98	Summa 24 hour	TO-14 & TPH	14.0	5.0	4.0	1.4	48.0	5.0	14.0	1.4
P-012-98	P9800076-2 Dup			TO-14	15.0	5.0	4.0	1.4	49.0	5.0	14.0	1.4
				Average	14.5	5.0	4.0	1.4	48.5	5.0	14.0	1.4
P-012-98	P9800076-1	14-Jan-98	Summa 24 hour	TO-14 & TPH	2.0	1.0	0.6	0.3	1.0	TR-1	0.3	TR-0.28
P-012-98	P9800076-1 Dup			TPH	na	na	na	na	na	na	na	na
				Average TPH								
P-012-98	P9800365-1	25-Feb-98	Summa 24 hour	TO-14 & TPH	6.9	1.0	1.9	0.3	17.0	1.0	4.9	0.3
P-012-98	P9800365-1 Dup				6.4	1.0	1.8	0.3	16.0	1.0	4.6	0.3
				Average	6.7	1.0	1.9	0.3	16.5	1.0	4.8	0.3
P-012-98	P9800365-2	25-Feb-98	Summa 24 hour	TO-14 & TPH	2.6	1.0	0.7	0.3	12.0	1.0	3.5	0.3
P-012-98	P9800365-3	25-Feb-98	Summa 24 hour	TO-14 & TPH	1.6	1.0	0.4	0.3	1.9	1.0	0.6	0.3
P-012-98	P9800762-1	5-May-98	Summa 24 hour	TO-14 & TPH	3.1	1.0	0.9	0.3	5.7	1.0	1.6	0.3
P-012-98	P9800762-3	5-May-98	Summa 24 hour	TO-14 & TPH	3.1	1.0	0.9	0.3	5.8	1.0	1.7	0.3
				Average	3.1	1.0	0.9	0.3	5.8	1.0	1.7	0.3
P-012-98	P9800762-2	5-May-98	Summa 24 hour	TO-14 & TPH	3.7	1.0	1.0	0.3	8.2	1.0	2.3	0.3

Maine DEP Spill #	Benzene				Toluene				Ethyl Benzene				m & p - Xylenes	
	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.
P-003-98	1.4	1.0	0.4	0.3	3.5	1.0	0.9	0.3	0.0	1.0	0.0	0.2	1.6	1.0
P-003-98	1.5	1.0	0.5	0.3	3.6	1.0	1.0	0.3	0.0	1.0	0.0	0.2	1.7	1.0
	1.5	1.0	0.5	0.3	3.6	1.0	0.9	0.3	0.0	1.0	0.0	0.2	1.7	1.0
P-003-98	1.5	1.0	0.5	0.3	31.0	1.0	8.2	0.3	0.8	TR-1	0.2	TR-0.23	2.6	1.0
P-003-98	1.5	1.0	0.5	0.3	5.9	1.0	1.6	0.3	0.0	1.0	0.0	0.2	2.7	1.0
P-012-98	0.0	0.0	52.0	8.4	0.0	0.0	100.0	8.4	0.0	0.0	53.0	8.4	0.0	0.0
P-012-98	140.0	10.0	43.0	3.1	260.0	10.0	68.0	2.7	140.0	10.0	32.0	2.3	510.0	10.0
P-012-98	69.0	4.0	22.0	1.3	130.0	4.0	35.0	1.1	65.0	4.0	15.0	0.9	240.0	4.0
P-012-98	0.0	0.0	8.8	1.2	0.0	0.0	16.0	1.2	0.0	0.0	8.0	1.2	0.0	0.0
P-012-98	29.0	5.0	9.0	1.6	52.0	5.0	14.0	1.3	28.0	5.0	6.4	1.2	110.0	5.0
P-012-98	0.0	0.0	15.0	1.0	0.0	0.0	27.0	1.0	0.0	0.0	14.0	1.0	0.0	0.0
P-012-98	41.0	5.0	13.0	1.6	74.0	5.0	20.0	1.3	40.0	5.0	9.3	1.2	150.0	5.0
P-012-98	40.0	5.0	13.0	1.6	75.0	5.0	20.0	1.3	40.0	5.0	9.3	1.2	150.0	5.0
	40.5	5.0	13.0	1.6	74.5	5.0	20.0	1.3	40.0	5.0	9.3	1.2	150.0	5.0
P-012-98	1.7	1.0	0.5	0.3	3.2	1.0	0.9	0.3	0.6	TR-1	0.1	TR-0.23	1.9	1.0
P-012-98	na	na	na	na	na	na	na	na	na	na	na	na	na	na
P-012-98	4.9	1.0	1.5	0.3	110.0	1.0	29.0	0.3	3.2	1.0	0.7	0.2	10.0	1.0
P-012-98	4.3	1.0	1.3	0.3	100.0	1.0	27.0	0.3	2.9	1.0	0.7	0.2	9.6	1.0
	4.6	1.0	1.4	0.3	105.0	1.0	28.0	0.3	3.1	1.0	0.7	0.2	9.8	1.0
P-012-98	6.6	1.0	2.1	0.3	12.0	1.0	3.1	0.3	0.0	1.0	0.0	0.2	1.3	1.0
P-012-98	1.6	1.0	0.5	0.3	7.7	1.0	2.0	0.3	0.0	1.0	0.0	0.2	3.0	1.0
P-012-98	3.2	1.0	1.0	0.3	27.0	1.0	7.3	0.3	4.3	1.0	1.0	0.2	11.0	1.0
P-012-98	3.3	1.0	1.0	0.3	28.0	1.0	7.4	0.3	4.3	1.0	1.0	0.2	11.0	1.0
	3.3	1.0	1.0	0.3	27.5	1.0	7.4	0.3	4.3	1.0	1.0	0.2	11.0	1.0
P-012-98	2.8	1.0	0.9	0.3	12.0	1.0	3.2	0.3	6.6	1.0	1.5	0.2	16.0	1.0

Maine DEP Spill #			o - Xylene				Total Xylenes				Nonane			
	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.
	ppb	ppb	ug/c.m.	ug/c.m.	ppb	ppb	ug/c.m.	ug/c.m.	ppb	ppb	ug/c.m.	ug/c.m.	ppb	ppb
P-003-98	0.4	0.2	0.8	TR-1	0.2	TR-0.23	2.4	1.0	0.5	0.2	1.7	1.0	0.3	0.2
P-003-98	0.4	0.2	0.9	TR-1	0.2	TR-0.23	2.6	1.0	0.6	0.2	1.8	1.0	0.3	0.2
	0.4	0.2	0.8		0.2		2.5	1.0	0.6	0.2	1.8	1.0	0.3	0.2
P-003-98	0.6	0.2	1.1	1.0	0.3	0.2	3.7	1.0	0.9	0.2	1.4	1.0	0.3	0.2
P-003-98	0.6	0.2	1.3	1.0	0.3	0.2	4.0	1.0	0.9	0.2	1.7	1.0	0.3	0.2
							0.0		0.0					
P-012-98	210.0	8.4	0.0	0.0	110.0	8.4	0.0	0.0	320	8.4	0.0	0.0	490	34.0
P-012-98	120.0	2.3	240.0	10.0	56.0	2.3	750.0	10.0	176	2.3	1800.0	10.0	350	1.9
P-012-98	55.0	0.9	110.0	4.0	26.0	0.9	350.0	4.0	81.0	0.9	840.0	4.0	160	0.8
							0.0		0.0					
P-012-98	32.0	1.2	0.0	0.0	17.0	1.2	0.0	0.0	49.0	1.2	0.0	0.0	73.0	4.9
P-012-98	24.0	1.2	50.0	5.0	11.0	1.2	160.0	5.0	35.0	1.2	380.0	5.0	74.0	1.0
P-012-98	57.0	1.0	0.0	0.0	29.0	1.0	0.0	0.0	86.0	1.0	0.0	0.0	140	4.0
P-012-98	35.0	1.2	72.0	5.0	17.0	1.2	222.0	5.0	52.0	1.2	570.0	5.0	110	1.0
P-012-98	35.0	1.2	72.0	5.0	17.0	1.2	222.0	5.0	52.0	1.2	570.0	5.0	110	1.0
	35.0	1.2	72.0	5.0	17.0	1.2	222.0	5.0	52.0	1.2	570.0	5.0	110	1.0
P-012-98	0.4	0.2	0.7	TR-1	0.2	TR-0.23	2.6	1.0	0.6	0.2	0.0	1.0	0.0	0.2
P-012-98	na	na	na	na	na	na	0.0	na	0.0	na	na	na	na	na
							0.0		0.0					
P-012-98	2.4	0.2	4.2	1.0	1.0	0.2	14.2	1.0	3.4	0.2	7.8	1.0	1.5	0.2
P-012-98	2.2	0.2	4.0	1.0	0.9	0.2	13.6	1.0	3.1	0.2	7.3	1.0	1.4	0.2
	2.3	0.2	4.1	1.0	0.9	0.2	13.9	1.0	3.2	0.2	7.6	1.0	1.5	0.2
P-012-98	0.3	0.2	0.0	1.0	0.0	0.2	1.3	1.0	0.3	0.2	1.7	1.0	0.3	0.2
P-012-98	0.7	0.2	1.3	1.0	0.3	0.2	4.3	1.0	1.0	0.2	1.7	1.0	0.3	0.2
P-012-98	2.6	0.2	9.5	1.0	2.2	0.2	20.5	1.0	4.8	0.2	44.0	1.0	8.4	0.2
P-012-98	2.6	0.2	9.1	1.0	2.1	0.2	20.1	1.0	4.7	0.2	43.0	1.0	8.1	0.2
	2.6	0.2	9.3	1.0	2.2	0.2	20.3	1.0	4.8	0.2	43.5	1.0	8.3	0.2
P-012-98	3.7	0.2	16.0	1.0	3.7	0.2	32.0	1.0	7.4	0.2	70.0	1.0	13.0	0.2
							0.0		0.0					

Maine DEP Spill #	Naphthalene				TPH as Diesel				TPH as Kerosene				Screening PID Data
	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result mg/c.m.	R.L. mg/c.m.	result ppm	R.L. ppm	result mg/c.m.	R.L. mg/c.m.	result ppm	R.L. ppm	ppm
P-003-98	1.4	1.0	0.3	0.2	0.0	3.2	0.0	0.4	na	na	na	na	
P-003-98	1.4	1.0	0.3	0.2	0.0	3.2	0.0	0.4	na	na	na	na	
	1.4	1.0	0.3	0.2	0.0	3.2	0.0	0.4					24
P-003-98	0.0	1.0	0.0	0.2	0.0	3.2	0.0	0.4	na	na	na	na	
P-003-98	1.3	1.0	0.3	0.2	0.0	3.2	0.0	0.4	na	na	na	na	
P-012-98	0.0	0.0	24.0	TIC-manual	na	na	na	na	na	na	na	na	
P-012-98	49.0	10.0	9.3	1.9	27.0	3.7	2.9	0.4	na	na	na	na	21.3
P-012-98	11.0	4.0	2.1	0.8	57.0	3.4	6.2	0.4	na	na	na	na	0
P-012-98	0.0	0.0	4.8	TIC-87%	na	na	na	na	na	na	na	na	
P-012-98	5.4	5.0	1.0	1.0	12.0	3.6	1.3	0.4	na	na	na	na	24
P-012-98	0.0	0.0	6.0	TIC-80%	na	na	na	na	na	na	na	na	
P-012-98	5.8	5.0	1.1	1.0	13.0	3.4	1.4	0.4	na	na	na	na	
P-012-98	5.7	5.0	1.1	1.0	na	na	na	na	na	na	na	na	
	5.8	5.0	1.1	1.0									75
P-012-98	0.0	1.0	0.0	0.2	0.0	3.4	0.0	0.4	na	na	na	na	
P-012-98	na	na	na	na	0.0	3.4	0.0	0.4	na	na	na	na	
					0.0	3.4	0.0	0.4					
P-012-98	1.8	1.0	0.4	0.2	0.0	3.3	0.0	0.4	na	na	na	na	
P-012-98	1.8	1.0	0.3	0.2	0.0	3.3	0.0	0.4	na	na	na	na	
	1.8	1.0	0.3	0.2	0.0	3.3	0.0	0.4					0.99
P-012-98	0.0	1.0	0.0	0.2	0.0	3.3	0.0	0.4	na	na	na	na	0.99
P-012-98	0.0	1.0	0.0	0.2	0.0	3.3	0.0	0.4	na	na	na	na	0.99
P-012-98	2.6	1.0	0.5	0.2	na	na	na	na	0.0	3.2	0.0	0.4	
P-012-98	2.3	1.0	0.4	0.2	na	na	na	na	0.0	3.2	0.0	0.4	
	2.5	1.0	0.5	0.2					0.0	3.2	0.0	0.4	4
P-012-98	4.0	1.0	0.8	0.2	na	na	na	na	0.0	3.1	0.0	0.4	21

Maine DEP Spill #	Quality Control	1,2-Dichloroethane-D4	Toluene-D8	Bromofluorobenzene	% Recovery within Method Limits (70-130)
P-003-98	Method Blank - ND	121.0	111.0	81.3	yes
P-003-98		107.0	106.0	93.9	yes
P-003-98		101.0	103.0	99.2	yes
P-003-98	Fld Blk(56/550) - toluene=3.1/0.81	106.0	107.0	95.9	yes
P-012-98	Lab Blank - ND				
P-012-98	Method Blank - ND / early diesel	99.5	91.0	88.8	yes
P-012-98	early diesel	105.0	92.0	94.7	yes
P-012-98					
P-012-98	early diesel	103.0	92.4	91.3	yes
P-012-98					
P-012-98	early diesel	106.0	92.9	94.3	yes
P-012-98		104.0	93.5	94.2	yes
P-012-98	Method Blank - ND	118.0	100.0	101.0	yes
P-012-98					
P-012-98	Method Blank - ND	97.8	101.0	108.0	yes
P-012-98		100.0	103.0	100.0	yes
P-012-98	Fld. Blk. (S4-553/S2-26) - ND	97.9	102.0	98.7	yes
P-012-98		102.0	109.0	92.3	yes
P-012-98	Method Blanks - ND	106	97.3	99.2	
P-012-98		107	97.7	100	
P-012-98		106	96.3	98.3	

Trial Period Study Database

Maine Department of Environmental Protection

Maine DEP Spill #	Town	Investigation Start	Date of Spill or Date Spill Discovered	Type of Spill	Location of Spill	Size of Spill (gallons)	Cause of Spill	Areas Impacted
P-622-97	Windham	11/05/97	11/3/97	no.2 fuel oil	basement-dirt floor	45	rusted seam leak	basement
P-622-97	Windham	11/05/97	11/3/97	no.2 fuel oil	basement-dirt floor	45	rusted seam leak	basement
P-622-97	Windham	11/05/97	11/3/97	no.2 fuel oil	basement-dirt floor	45	rusted seam leak	basement
P-622-97	Windham	11/05/97	11/3/97	no.2 fuel oil	basement-dirt floor	45	rusted seam leak	basement
P-622-97	Windham	11/05/97	11/3/97	no.2 fuel oil	basement-dirt floor	45	rusted seam leak	basement
P-622-97	Windham	11/05/97	11/3/97	no.2 fuel oil	basement-dirt floor	45	rusted seam leak	basement
P-622-97	Windham	11/05/97	11/3/97	no.2 fuel oil	basement-dirt floor	45	rusted seam leak	basement
P-622-97	Windham	11/05/97	11/3/97	no.2 fuel oil	basement-dirt floor	45	rusted seam leak	basement
P-622-97	Windham	11/05/97	11/3/97	no.2 fuel oil	basement-dirt floor	45	rusted seam leak	basement
P-622-97	Windham	11/05/97	11/3/97	no.2 fuel oil	basement-dirt floor	45	rusted seam leak	basement
P-662-96	Scarborough	11/06/96	10/23/96	no.2 fuel oil	basement	275.99	flooding caused spill	basement
P-662-96	Scarborough	11/06/96	10/23/96	no.2 fuel oil	basement	275.99	flooding caused spill	basement
P-662-96	Scarborough	11/06/96	10/23/96	no.2 fuel oil	basement	275.99	flooding caused spill	basement
P-662-96	Scarborough	11/06/96	10/23/96	no.2 fuel oil	basement	275.99	flooding caused spill	basement
P-662-96	Scarborough	11/06/96	10/23/96	no.2 fuel oil	basement	275.99	flooding caused spill	basement
P-662-96	Scarborough	11/06/96	10/23/96	no.2 fuel oil	basement	275.99	flooding caused spill	basement
A-020-97	Augusta	10/29/97	1/22/97	no.2 fuel oil	basement	100	loose fill pipe	basement, floating slab
A-020-97	Augusta	10/29/97	1/22/97	no.2 fuel oil	basement	100	loose fill pipe	basement, floating slab
A-020-97	Augusta	10/29/97	1/22/97	no.2 fuel oil	basement	100	loose fill pipe	basement, floating slab
A-020-97	Augusta	10/29/97	1/22/97	no.2 fuel oil	basement	100	loose fill pipe	basement, floating slab
P-071-98	Kennebunk	02/18/98	2/5/98	kerosene	exterior AST back of house	150-180	ice sheared filter	exterior oil tank area, basement (w/ flood), well?
P-071-98	Kennebunk	02/18/98	2/5/98	kerosene	exterior AST back of house	150-180	ice sheared filter	exterior oil tank area, basement (w/ flood), well?

Maine DEP Spill #	Odor Present at Time of Sampling?	Health Effects	Other Indoor Sources	House Type	Attached Garage	Foundation	Year Built
P-622-97	yes-strong	yes	2 oil tanks, mothballs upstairs	single, 1-story	no	basement	1940-1949
P-622-97	yes-strong	yes	2 oil tanks, mothballs upstairs	single, 1-story	no	basement	1940-1949
P-622-97	yes-strong	yes	2 oil tanks, mothballs upstairs	single, 1-story	no	basement	1940-1949
P-622-97	yes-strong	yes	2 oil tanks, mothballs upstairs	single, 1-story	no	basement	1940-1949
P-622-97	yes-back patio/basement	yes	2 oil tanks, mothballs upstairs	single, 1-story	no	basement	1940-1949
P-622-97	yes-back patio/basement	yes	2 oil tanks, mothballs upstairs	single, 1-story	no	basement	1940-1949
P-622-97	yes-back patio/basement	yes	2 oil tanks, mothballs upstairs	single, 1-story	no	basement	1940-1949
P-622-97	no	no	2 oil tanks, living rm. ceiling painted w/ latex 3 wks prior	single, 1-story	no	basement	1940-1949
P-622-97	no	no	2 oil tanks, living rm. ceiling painted w/ latex 3 wks prior	single, 1-story	no	basement	1940-1949
P-622-97	no	no	2 oil tanks, living rm. ceiling painted w/ latex 3 wks prior	single, 1-story	no	basement	1940-1949
P-662-96			oil tank	single, 2-story	no	basement	1939 or earlier
P-662-96			oil tank	single, 2-story	no	basement	1939 or earlier
P-662-96			oil tank	single, 2-story	no	basement	1939 or earlier
P-662-96	no	no	oil tank	single, 2-story	no	basement	1939 or earlier
P-662-96	no	no	oil tank	single, 2-story	no	basement	1939 or earlier
P-662-96	no	no	oil tank	single, 2-story	no	basement	1939 or earlier
A-020-97	yes-fuel vs. floor seal (xylene)?		oil tank, floor seal (few wks prior), gas equip removed	single, 2-story	yes	basement	1996 ?
A-020-97	yes-fuel vs. floor seal (xylene)?		oil tank, floor seal (few wks prior), gas equip removed	single, 2-story	yes	basement	1996 ?
A-020-97	yes-fuel vs. floor seal (xylene)?		oil tank, floor seal (few wks prior), gas equip removed	single, 2-story	yes	basement	1996 ?
A-020-97	yes-fuel vs. floor seal (xylene)?		oil tank, floor seal (few wks prior), gas equip removed	single, 2-story	yes	basement	1996 ?
P-071-98	yes - strong	yes	furn. draws air from cellar	single, 1-story	no	basement- con. blk	1949 (cellar later)
P-071-98	yes - strong	yes	furn. draws air from cellar	single, 1-story	no	basement- con. blk	1949 (cellar later)

Maine DEP Spill #	Recent Renovations (in last year)	Description of Area Surrounding House	Traffic Level Near House	Potential Outdoor Sources	Heat Source
P-622-97	no	lawn/garden	dirt road	no	oil
P-622-97	no	lawn/garden	dirt road	no	oil
P-622-97	no	lawn/garden	dirt road	no	oil
P-622-97	no	lawn/garden	dirt road	no	oil
P-622-97	no	lawn/garden	dirt road	no	oil
P-622-97	no	lawn/garden	dirt road	no	oil
P-622-97	no	lawn/garden	dirt road	no	oil
P-622-97	no	lawn/garden	dirt road	no	oil
P-622-97	no	lawn/garden	dirt road	no	oil
P-662-96	roof reshingled	lawn	moderate / seasonal	generator pumping water	oil
P-662-96	roof reshingled	lawn	moderate / seasonal	generator pumping water	oil
P-662-96	roof reshingled	lawn	moderate / seasonal	generator pumping water	oil
P-662-96	roof reshingled, furnace 11/96	lawn	moderate / seasonal	no	oil
P-662-96	roof reshingled, furnace 11/96	lawn	moderate / seasonal	no	oil
P-662-96	roof reshingled, furnace 11/96	lawn	moderate / seasonal	no	oil
A-020-97		lawn	dirt road	no	oil
A-020-97		lawn	dirt road	no	oil
A-020-97		lawn	dirt road	no	oil
A-020-97		lawn	dirt road	no	oil
P-071-98	furnace moved to 1st floor	lawn	busy	kerosene tank	kerosene
P-071-98	furnace moved to 1st floor	lawn	busy	kerosene tank	kerosene

Maine DEP Spill #	Furnace Type	Any Secondary Heating Source(s) Present?	Gas Stove	Air Cleaners	Air Conditioning	Smoking (average # of cigarettes per day)	Meteorologic Data
P-622-97	central warm air	no	no	no	no	10-14/1.5 pk; son<10	
P-622-97	central warm air	no	no	no	no	10-14/1.5 pk; son<10	
P-622-97	central warm air	no	no	no	no	10-14/1.5 pk; son<10	
P-622-97	central warm air	no	no	no	no	10-14/1.5 pk; son<10	
P-622-97	central warm air	kerosene heater Jan 8-15	no	no	no	10-14/1.5 pk; son<10	25-30 F, NE wind, low humidity/b.pressure, part cloudy
P-622-97	central warm air	kerosene heater Jan 8-15	no	no	no	10-14/1.5 pk; son<10	25-30 F, NE wind, low humidity/b.pressure, part cloudy
P-622-97	central warm air	kerosene heater Jan 8-15	no	no	no	10-14/1.5 pk; son<10	25-30 F, NE wind, low humidity/b.pressure, part cloudy
P-622-97	central warm air	no	no	no	no	1 pack	40 F, high humidity/low b.pressure, rain and fog
P-622-97	central warm air	no	no	no	no	1 pack	40 F, high humidity/low b.pressure, rain and fog
P-622-97	central warm air	no	no	no	no	1 pack	40 F, high humidity/low b.pressure, rain and fog
P-662-96	vented floor, hot air	no	no	no	no	yes on outside porch	clear, cool and breezy
P-662-96	vented floor, hot air	no	no	no	no	yes on outside porch	clear, cool and breezy
P-662-96	vented floor, hot air	no	no	no	no	yes on outside porch	clear, cool and breezy
P-662-96	vented floor, hot air	no	no	no	no	yes on outside porch	25-30 F, NE wind-29 mph, low humidity/b.pressure, part cloudy
P-662-96	vented floor, hot air	no	no	no	no	yes on outside porch	25-30 F, NE wind-29 mph, low humidity/b.pressure, part cloudy
P-662-96	vented floor, hot air	no	no	no	no	yes on outside porch	25-30 F, NE wind-29 mph, low humidity/b.pressure, part cloudy
A-020-97	steam/hot water	no	no	air filter	no	pipes (outside ?)	
A-020-97	steam/hot water	no	no	air filter	no	pipes (outside ?)	
A-020-97	steam/hot water	no	no	air filter	no	pipes (outside ?)	
A-020-97	steam/hot water	no	no	air filter	no	pipes (outside ?)	
P-071-98	central warm air	no	no	no	no	no	35 F, steady rain 2/18-19/98
P-071-98	central warm air	no	no	no	no	no	35 F, steady rain 2/18-19/98

Maine DEP Spill #	Activities during sampling	Sample Location	DEP Staff Conducting Sampling	DEP Sample #
P-622-97	3/4-1 pk cigarettes, heat (furn. draws from 1st fl)	Basement	P.E. & B.L.	393
P-622-97	3/4-1 pk cigarettes, heat (furn. draws from 1st fl)			
		Basement Average		
P-622-97	3/4-1 pk cigarettes, heat (furn. draws from 1st fl)	Outside	P.E. & B.L.	456
P-622-97	3/4-1 pk cigarettes, heat (furn. draws from 1st fl)	Living Area	P.E. & B.L.	144
P-622-97	40 cigarettes, more since storm, heat (furn. draws from 1st fl)	Outside	A. Hemenway	442
P-622-97	40 cigarettes, more since storm, heat (furn. draws from 1st fl)	Living Area	A. Hemenway	1109
P-622-97	40 cigarettes, more since storm, heat (furn. draws from 1st fl)	Basement	A. Hemenway	119
P-622-97	1 pack of cigarettes, heat	Outside	A. Hemenway	139
P-622-97	1 pack of cigarettes, heat	Living Area	A. Hemenway	182
P-622-97	1 pack of cigarettes, heat	Basement	A. Hemenway	75
P-662-96	gener. pumping water, bulk doors open, airing out prior, cov. vents, flooded	Kitchen	P. Eremita	WM2498-1/94943
P-662-96	gener. pumping water, bulk doors open, airing out prior, cov. vents, flooded	Outside (neigh. lawn)	P. Eremita	WM2498-2/13665
P-662-96	gener. pumping water, bulk doors open, airing out prior, cov. vents, flooded	Basement	P. Eremita	WM2498-3/13865
P-662-96	spill year ago(post cleanup), heat, kit. dryer venting in basement turned off just prior	Outside (snow bank)	A. Hemenway	1113
P-662-96	spill year ago(post cleanup), heat, kit. dryer venting in basement turned off just prior	Kitchen	A. Hemenway	158
P-662-96	spill year ago(post cleanup), heat, kit. dryer venting in basement turned off just prior	Basement	A. Hemenway	139
A-020-97	carpentry equip. in basement, heat?/ (spill 9 mo. prior w/ floor vacuumed, cleaned and recently sealed)	Basement	P. Locklin	506
A-020-97	carpentry equip. in basement, heat?/ (spill 9 mo. prior w/ floor vacuumed, cleaned and recently sealed)	Outside (leechfield)	P. Locklin	589
A-020-97	carpentry equip. in basement, heat?/ (spill 9 mo. prior w/ floor vacuumed, cleaned and recently sealed)	Living Area	P. Locklin	576
A-020-97	carpentry equip. in basement, heat?/ (spill 9 mo. prior w/ floor vacuumed, cleaned and recently sealed)			
		Living Area Average		
P-071-98	heat, pre-any remediation, 32 in. water in cellar	Kitchen	P. Eremita	#1/172
P-071-98	heat, pre-any remediation, 32 in. water in cellar			
		Kitchen Average		

Trial Period Study Database

Maine Department of Environmental Protection

Maine DEP Spill #	Lab Sample #	Sample Collection Date	Sample Type	Analytical Method	tert Butyl Methyl Ether				Hexane			
					result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb
P-622-97	P9704270-1	5-Nov-97	< Summa 24 hour	TO-14	18.0	2.0	5.1	0.6	63.0	2.0	18.0	0.6
P-622-97	P9704270-1 Dup				17.0	2.0	4.7	0.6	58.0	2.0	16.0	0.6
				Average	17.5	2.0	4.9	0.6	60.5	2.0	17.0	0.6
P-622-97	P9704270-2	5-Nov-97	< Summa 24 hour	TO-14	3.0	1.0	0.8	0.3	3.8	1.0	1.1	0.3
P-622-97	P9704270-3	5-Nov-97	< Summa 24 hour	TO-14	16.0	2.0	4.6	0.6	52.0	2.0	15.0	0.6
P-622-97	P9800254-1	5-Feb-98	Summa 24 hour	TO-14 & TPH	0.0	1.0	0.0	0.3	0.7	TR-1	0.2	TR-0.28
P-622-97	P9800254-2	5-Feb-98	Summa 24 hour	TO-14 & TPH	0.8	TR-1	0.2	TR-0.28	0.9	TR-1	0.3	TR-0.28
P-622-97	P9800254-3	5-Feb-98	Summa 24 hour	TO-14 & TPH	0.8	TR-1	0.2	TR-0.28	0.0	1.0	0.0	0.3
P-622-97	P9800759-1	6-May-98	Summa 24 hour	TO-14 & TPH	0.6	TR-1	0.2	TR-0.28	0.6	TR-1	0.2	TR-0.28
P-622-97	P9800759-2	6-May-98	Summa 24 hour	TO-14 & TPH	1.0	1.0	0.3	0.3	1.4	1.0	0.4	0.3
P-622-97	P9800759-3	6-May-98	Summa 24 hour	TO-14 & TPH	1.3	1.0	0.4	0.3	0.0	1.0	0.0	0.3
P-662-96	@9611081-01A	6-Nov-96	Summa 4 hour	TO-14 Full List	0.0	0.0	0.0	8.4	0.0	0.0	0.0	8.4
P-662-96	@9611081-02A	6-Nov-96	Summa 4 hour	TO-14 Full List	0.0	0.0	0.0	3.4	0.0	0.0	0.0	3.4
P-662-96	@9611081-03A	6-Nov-96	Summa 4 hour	TO-14 Full List	0.0	0.0	0.0	11.0	0.0	0.0	0.0	11.0
P-662-96	P9800253-1	5-Feb-98	Summa 24 hour	TO-14 & TPH	0.8	TR-1	0.2	TR-0.28	0.0	1.0	0.0	0.3
P-662-96	P9800253-2	5-Feb-98	Summa 24 hour	TO-14 & TPH	3.9	1.0	1.1	0.3	1.6	1.0	0.5	0.3
P-662-96	P9800253-3	5-Feb-98	Summa 24 hour	TO-14 & TPH	1.1	1.0	0.3	0.3	2.0	1.0	0.6	0.3
A-020-97	P9704225-1	29-Oct-97	Summa 24 hour	TO-14	18.0	1.0	5.0	0.3	8.3	1.0	2.4	0.3
A-020-97	P9704225-2	29-Oct-97	Summa 24 hour	TO-14	0.7	TR-1	0.2	TR-0.28	0.0	1.0	0.0	0.3
A-020-97	P9704225-3	29-Oct-97	Summa 24 hour	TO-14	14.0	1.0	3.9	0.3	7.3	1.0	2.1	0.3
A-020-97	P9704225-3 Dup				14.0	1.0	4.0	0.3	7.4	1.0	2.1	0.3
				Average	14.0	1.0	4.0	0.3	7.4	1.0	2.1	0.3
P-071-98	P9800310-1	19-Feb-98	Summa 24 hour	TO-14 & TPH	0.0	20.0	0.0	5.5	48.0	20.0	14.0	5.7
P-071-98	P9800310-1 Dup				na	na	na	na	na	na	na	na
				Average TPH								

Maine DEP Spill #	Benzene				Toluene				Ethyl Benzene				m & p - Xylenes	
	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.
P-622-97	28.0	2.0	8.6	0.6	220.0	2.0	60.0	0.5	110.0	2.0	26.0	0.5	370.0	2.0
P-622-97	26.0	2.0	8.1	0.6	230.0	2.0	62.0	0.5	110.0	2.0	25.0	0.5	350.0	2.0
	27.0	2.0	8.4	0.6	225.0	2.0	61.0	0.5	110.0	2.0	25.5	0.5	360.0	2.0
P-622-97	1.3	1.0	0.4	0.3	11.0	1.0	2.9	0.3	0.0	1.0	0.0	0.2	2.0	1.0
P-622-97	27.0	2.0	8.4	0.6	220.0	2.0	58.0	0.5	99.0	2.0	23.0	0.5	320.0	2.0
P-622-97	0.8	TR-1	0.3	TR-0.31	2.1	1.0	0.6	0.3	0.0	1.0	0.0	0.2	1.0	TR-1
P-622-97	3.5	1.0	1.1	0.3	14.0	1.0	3.8	0.3	3.8	1.0	0.9	0.2	12.0	1.0
P-622-97	1.0	TR-1	0.3	TR-0.31	9.9	1.0	2.6	0.3	4.1	1.0	0.9	0.2	14.0	1.0
P-622-97	0.6	TR-1	0.2	TR-0.31	1.3	1.0	0.4	0.3	0.0	1.0	0.0	0.2	1.1	1.0
P-622-97	6.5	1.0	2.0	0.3	22.0	1.0	5.8	0.3	5.0	1.0	1.2	0.2	12.0	1.0
P-622-97	2.2	1.0	0.7	0.3	4.8	1.0	1.3	0.3	3.4	1.0	0.8	0.2	7.3	1.0
P-662-96	0.0	0.0	0.0	2.1	0.0	0.0	29.0	2.1	0.0	0.0	30.0	2.1	0.0	0.0
P-662-96	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.9	0.0	0.0
P-662-96	0.0	0.0	3.7	2.7	0.0	0.0	14.0	2.7	0.0	0.0	13.0	2.7	0.0	0.0
P-662-96	0.8	TR-1	0.2	TR-0.31	1.9	1.0	0.5	0.3	0.0	1.0	0.0	0.2	1.1	1.0
P-662-96	1.2	1.0	0.4	0.3	11.0	1.0	2.9	0.3	1.4	1.0	0.3	0.2	4.7	1.0
P-662-96	1.1	1.0	0.4	0.3	4.8	1.0	1.3	0.3	1.5	1.0	0.4	0.2	5.2	1.0
A-020-97	3.8	1.0	1.2	0.3	64.0	1.0	17.0	0.3	72.0	1.0	17.0	0.2	280.0	1.0
A-020-97	0.0	1.0	0.0	0.3	20.0	1.0	5.4	0.3	0.0	1.0	0.0	0.2	1.6	1.0
A-020-97	2.9	1.0	0.9	0.3	60.0	1.0	16.0	0.3	7.8	1.0	1.8	0.2	30.0	1.0
A-020-97	2.9	1.0	0.9	0.3	60.0	1.0	16.0	0.3	7.5	1.0	1.7	0.2	30.0	1.0
	2.9	1.0	0.9	0.3	60.0	1.0	16.0	0.3	7.7	1.0	1.8	0.2	30.0	1.0
P-071-98	17.0	20.0	5.2	TR-6.3	200.0	20.0	52.0	5.3	630.0	20.0	150	4.6	2200.0	20.0
P-071-98	na	na	na	na	na	na	na	na	na	na	na	na	na	na

Maine DEP Spill #			o - Xylene				Total Xylenes				Nonane			
	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb
P-622-97	85.0	0.5	160.0	2.0	37.0	0.5	530.0	2.0	122	0.5	380.0	2.0	72.0	0.4
P-622-97	81.0	0.5	150.0	2.0	36.0	0.5	500.0	2.0	117	0.5	350.0	2.0	67.0	0.4
	83.0	0.5	155.0	2.0	36.5	0.5	515.0	2.0	120	0.5	365.0	2.0	69.5	0.4
P-622-97	0.5	0.2	0.0	1.0	0.0	0.2	2.0	1.0	0.5	0.2	0.0	1.0	0.0	0.2
P-622-97	73.0	0.5	140.0	2.0	32.0	0.5	460.0	2.0	105	0.5	310.0	2.0	60.0	0.4
							0.0		0.0					
P-622-97	0.2	TR-0.23	0.0	1.0	0.0	0.2	1.0	1.0	0.2	0.2	0.6	TR-1	0.1	TR-0.19
P-622-97	2.7	0.2	6.3	1.0	1.5	0.2	18.3	1.0	4.2	0.2	13.0	1.0	2.5	0.2
P-622-97	3.1	0.2	7.8	1.0	1.8	0.2	21.8	1.0	4.9	0.2	18.0	1.0	3.4	0.2
P-622-97	0.3	0.2	0.0	1.0	0.0	0.2	1.1	1.0	0.3	0.2	0.0	1.0	0.0	0.2
P-622-97	2.7	0.2	7.3	1.0	1.7	0.2	19.3	1.0	4.4	0.2	14.0	1.0	2.8	0.2
P-622-97	1.7	0.2	6.0	1.0	1.4	0.2	13.3	1.0	3.1	0.2	12.0	1.0	2.2	0.2
P-662-96	130.0	2.1	0.0	0.0	120.0	2.1	0.0	0.0	250	2.1	0.0	0.0	290	TIC-76 %
P-662-96	0.0	0.9	0.0	0.0	0.0	0.9	0.0	0.0	0	0.9	0.0	0.0	0	TIC-na
P-662-96	61.0	2.7	0.0	0.0	71.0	2.7	0.0	0.0	132	2.7	0.0	0.0	280	TIC-87 %
							0.0		0.0					
P-662-96	0.3	0.2	0.0	1.0	0.0	0.2	1.1	1.0	0.3	0.2	0.0	1.0	0.0	0.2
P-662-96	1.1	0.2	1.8	1.0	0.4	0.2	6.5	1.0	1.5	0.2	1.3	1.0	0.3	0.2
P-662-96	1.2	0.2	1.5	1.0	0.4	0.2	6.7	1.0	1.6	0.2	1.4	1.0	0.3	0.2
							0.0		0.0					
A-020-97	66.0	0.2	100.0	1.0	23.0	0.2	380.0	1.0	89.0	0.2	53.0	1.0	10.0	0.2
A-020-97	0.4	0.2	0.0	1.0	0.0	0.2	1.6	1.0	0.4	0.2	0.0	1.0	0.0	0.2
A-020-97	6.8	0.2	11.0	1.0	2.4	0.2	41.0	1.0	9.2	0.2	4.4	1.0	0.8	0.2
A-020-97	6.9	0.2	10.0	1.0	2.4	0.2	40.0	1.0	9.3	0.2	4.5	1.0	0.9	0.2
	6.9	0.2	10.5	1.0	2.4	0.2	40.5	1.0	9.3	0.2	4.5	1.0	0.8	0.2
							0.0		0.0					
P-071-98	510.0	4.6	1300.0	20.0	310.0	4.6	3500.0	20.0	820	4.6	7700.0	20.0	1500	3.8
P-071-98	na	na	na	na	na	na	0.0	na	0	na	na	na	na	na

Maine DEP Spill #	Naphthalene				TPH as Diesel				TPH as Kerosene				Screening PID Data
	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	
	ug/c.m.	ug/c.m.	ppb	ppb	mg/c.m.	mg/c.m.	ppm	ppm	mg/c.m.	mg/c.m.	ppm	ppm	ppm
P-622-97	42.0	2.0	8.1	0.4	na	na	na	na	na	na	na	na	
P-622-97	40.0	2.0	7.6	0.4	na	na	na	na	na	na	na	na	
	41.0	2.0	7.9	0.4									30
P-622-97	0.0	1.0	0.0	0.2	na	na	na	na	na	na	na	na	
P-622-97	29.0	2.0	5.5	0.4	na	na	na	na	na	na	na	na	
P-622-97	0.0	1.0	0.0	0.2	0.0	3.2	0.0	0.4	na	na	na	na	
P-622-97	3.3	1.0	0.6	0.2	0.0	3.3	0.0	0.4	na	na	na	na	
P-622-97	1.1	1.0	0.2	0.2	0.0	6.7	0.0	0.7	na	na	na	na	
P-622-97	0.0	1.0	0.0	0.2	0.0	3.2	0.0	0.4	na	na	na	na	
P-622-97	10.0	1.0	1.9	0.2	0.0	3.1	0.0	0.3	na	na	na	na	
P-622-97	1.8	1.0	0.4	0.2	0.0	3.1	0.0	0.3	na	na	na	na	
P-662-96	0.0	0.0	18.0	TIC-90 %	59 0	(C2-C8)gas-2	12000.0	(C9+)gas-21 0	na	na	na	na	14
P-662-96	0.0	0.0	0.0	TIC-na	13 0	(C2-C8)gas-8	28.0	(C9+)gas-8.6 0	na	na	na	na	
P-662-96	0.0	0.0	170	TIC-87 %	93 0	(C2-C8)gas-2	25000.0	(C9+)gas-27 0	na	na	na	na	4
P-662-96	0.0	1.0	0.0	0.2	12.0	3.7	1.3	0.4	na	na	na	na	na
P-662-96	0.0	1.0	0.0	0.2	12.0	3.4	1.3	0.4	na	na	na	na	
P-662-96	0.0	1.0	0.0	0.2	6.2	3.3	0.7	0.4	na	na	na	na	
A-020-97	24.0	1.0	4.7	0.2	na	na	na	na	na	na	na	na	4
A-020-97	0.0	1.0	0.0	0.2	na	na	na	na	na	na	na	na	
A-020-97	2.2	1.0	0.4	0.2	na	na	na	na	na	na	na	na	
A-020-97	2.4	1.0	0.5	0.2	na	na	na	na	na	na	na	na	
	2.3	1.0	0.4	0.2									
P-071-98	240.0	20.0	45.0	3.8	190.0	3.7	20.0	0.4	210.0	3.7	28.0	0.5	230
P-071-98	na	na	na	na	190.0	3.7	20.0	0.4	210.0	3.7	28.0	0.5	
					190.0	3.7	20.0	0.4	210.0	3.7	28.0	0.5	

Maine DEP Spill #	Quality Control	1,2-Dichloroethane-D4	Toluene-D8	Bromofluorobenzene	% Recovery within Method Limits (70-130)
P-622-97	Method Blank - ND	117.0	94.4	99.9	yes
P-622-97		97.5	101.0	99.2	yes
	ambient PID data				
P-622-97		90.5	104.0	97.4	yes
P-622-97		101.0	101.0	102.0	yes
P-622-97	Method Blank - ND	106.0	102.0	86.6	yes
P-622-97		107.0	94.0	78.1	yes
P-622-97		104.0	95.0	79.2	yes
P-622-97	Method Blanks - ND	127	99.7	97.9	
P-622-97		124	98.4	95.4	
P-622-97		123	98.3	95.8	
P-662-96	Lab Blank-ND				
P-662-96					
P-662-96					
P-662-96	Method Blank - ND/not diesel	119.0	100.0	100.0	yes
P-662-96	not diesel	121.0	98.8	99.2	yes
P-662-96	not diesel	118.0	98.4	98.2	yes
A-020-97	Method Blank - ND	74.7	99.9	100.0	yes
A-020-97		77.1	104.0	94.2	yes
A-020-97		80.7	101.0	91.1	yes
A-020-97		83.1	101.0	92.1	yes
P-071-98	Method Blanks - ND /not diesel	109.0	90.7	93.5	yes
P-071-98	not diesel				

Maine DEP Spill #	Town	Investigation Start	Date of Spill or Date Spill Discovered	Type of Spill	Location of Spill	Size of Spill (gallons)	Cause of Spill	Areas Impacted
P-071-98	Kennebunk	02/18/98	2/5/98	kerosene	exterior AST back of house	150-180	ice sheared filter	exterior oil tank area, basement (w/ flood), well?
P-071-98	Kennebunk	02/18/98	2/5/98	kerosene	exterior AST back of house	150-180	ice sheared filter	exterior oil tank area, basement (w/ flood), well?
P-071-98	Kennebunk	02/18/98	2/5/98	kerosene	exterior AST back of house	150-180	ice sheared filter	exterior oil tank area, basement (w/ flood), well?
P-071-98	Kennebunk	02/18/98	2/5/98	kerosene	exterior AST back of house	150-180	ice sheared filter	exterior oil tank area, basement (w/ flood), well?
P-071-98	Kennebunk	02/18/98	2/5/98	kerosene	exterior AST back of house	150-180	ice sheared filter	exterior oil tank area, basement (w/ flood), well?
P-071-98	Kennebunk	02/18/98	2/5/98	kerosene	exterior AST back of house	150-180	ice sheared filter	exterior oil tank area, basement (w/ flood), well?
P-071-98	Kennebunk							
P-071-98	Kennebunk	02/18/98	2/5/98	kerosene	exterior AST back of house	150-180	ice sheared filter	exterior oil tank area, basement (w/ flood), well?
P-071-98	Kennebunk	02/18/98	2/5/98	kerosene	exterior AST back of house	150-180	ice sheared filter	exterior oil tank area, basement (w/ flood), well?
P-071-98	Kennebunk	02/18/98	2/5/98	kerosene	exterior AST back of house	150-180	ice sheared filter	exterior oil tank area, basement (w/ flood), well?
P-071-98	Kennebunk	02/18/98	2/5/98	kerosene	exterior AST back of house	150-180	ice sheared filter	exterior oil tank area, basement (w/ flood), well?
P-094-98	Portland	03/02/98	2/23/98 leak	no.2 fuel oil	basement, below slab	150.99	slow leaking copper line	basement sub-slab, sump (pads)
P-094-98	Portland	03/02/98	2/23/98 leak	no.2 fuel oil	basement, below slab	150.99	slow leaking copper line	basement sub-slab, sump (pads)
						150.99		
P-094-98	Portland	03/02/98	2/23/98 leak	no.2 fuel oil	basement, below slab	150.99	slow leaking copper line	basement sub-slab, sump (pads)
P-094-98	Portland	03/02/98	2/23/98 leak	no.2 fuel oil	basement, below slab	150.99	slow leaking copper line	basement sub-slab, sump (pads)
						150.99		
P-094-98	Portland	03/02/98	2/23/98 leak	no.2 fuel oil	basement, below slab	150.99	slow leaking copper line	basement sub-slab, sump (pads)
P-094-98	Portland	03/02/98	2/23/98 leak	no.2 fuel oil	basement, below slab	150.99	slow leaking copper line	basement sub-slab, sump (pads)
P-094-98	Portland	03/02/98	2/23/98 leak	no.2 fuel oil	basement, below slab	150.99	slow leaking copper line	basement sub-slab, sump (pads)
P-094-98	Portland	03/02/98	2/23/98 leak	no.2 fuel oil	basement, below slab	150.99	slow leaking copper line	basement sub-slab, sump (pads)
		03/02/98	2/23/98 leak	no.2 fuel oil	basement, below slab	150.99	slow leaking copper line	basement sub-slab, sump (pads)
P-094-98	Portland	03/02/98	2/23/98 leak	no.2 fuel oil	basement, below slab	150.99	slow leaking copper line	basement sub-slab, sump (pads)
P-094-98	Portland	03/02/98	2/23/98 leak	no.2 fuel oil	basement, below slab	150.99	slow leaking copper line	basement sub-slab, sump (pads)

Maine DEP Spill #	Odor Present at Time of Sampling?	Health Effects	Other Indoor Sources	House Type	Attached Garage	Foundation	Year Built
P-071-98	yes - strong	yes	furn. draws air from cellar	single, 1-story	no	basement- con. blk	1949 (cellar later)
P-071-98	yes - strong	yes	furn. draws air from cellar	single, 1-story	no	basement- con. blk	1949 (cellar later)
P-071-98	no	no	furn. draws air from cellar	single, 1-story	no	basement- con. blk	1949 (cellar later)
P-071-98	no	no	furn. draws air from cellar	single, 1-story	no	basement- con. blk	1949 (cellar later)
P-071-98	no	no	furn. draws air from cellar	single, 1-story	no	basement- con. blk	1949 (cellar later)
P-071-98	no	no	furn. draws air from cellar	single, 1-story	no	basement- con. blk	1949 (cellar later)
P-071-98							
P-071-98	faint in basement		furn. draws air from cellar	single, 1-story	no	basement- con. blk	1949 (cellar later)
P-071-98	faint in basement		furn. draws air from cellar	single, 1-story	no	basement- con. blk	1949 (cellar later)
P-071-98	faint in basement		furn. draws air from cellar	single, 1-story	no	basement- con. blk	1949 (cellar later)
P-071-98	faint in basement		furn. draws air from cellar	single, 1-story	no	basement- con. blk	1949 (cellar later)
P-094-98	no	yes	paint (1st fl, cellar); K-1, solvents, oil tank (cellar)	single, 2-story	no	basement	1956-1959
P-094-98	no	yes	paint (1st fl, cellar); K-1, solvents, oil tank (cellar)	single, 2-story	no	basement	1956-1959
P-094-98	no	yes	paint (1st fl, cellar); K-1, solvents, oil tank (cellar)	single, 2-story	no	basement	1956-1959
P-094-98	no	yes	paint (1st fl, cellar); K-1, solvents, oil tank (cellar)	single, 2-story	no	basement	1956-1959
P-094-98	no	yes	paint (1st fl, cellar); K-1, solvents, oil tank (cellar)	single, 2-story	no	basement	1956-1959
P-094-98	slight in basement	no	paint (1st fl, cellar); K-1, solvents, oil tank (cellar)	single, 2-story	no	basement	1956-1959
P-094-98	slight in basement	no	paint (1st fl, cellar); K-1, solvents, oil tank (cellar)	single, 2-story	no	basement	1956-1959
P-094-98	slight in basement	no	paint (1st fl, cellar); K-1, solvents, oil tank (cellar)	single, 2-story	no	basement	1956-1959
	slight in basement	no	paint (1st fl, cellar); K-1, solvents, oil tank (cellar)	single, 2-story	no	basement	1956-1959
P-094-98	slight in basement	no	paint (1st fl, cellar); K-1, solvents, oil tank (cellar)	single, 2-story	no	basement	1956-1959
P-094-98	slight in basement	no	paint (1st fl, cellar); K-1, solvents, oil tank (cellar)	single, 2-story	no	basement	1956-1959

Maine DEP Spill #	Recent Renovations (in last year)	Description of Area Surrounding House	Traffic Level Near House	Potential Outdoor Sources	Heat Source
P-071-98	furnace moved to 1st floor	lawn	busy	kerosene tank	kerosene
P-071-98	furnace moved to 1st floor	lawn	busy	kerosene tank	kerosene
P-071-98	furnace moved to 1st floor	lawn	busy	kerosene tank	kerosene
P-071-98	furnace moved to 1st floor	lawn	busy	kerosene tank	kerosene
P-071-98	furnace moved to 1st floor	lawn	busy	kerosene tank	kerosene
P-071-98	furnace moved to 1st floor	lawn	busy	kerosene tank	kerosene
P-071-98					
P-071-98	furnace moved to 1st floor	lawn	busy	kerosene tank	kerosene
P-071-98	furnace moved to 1st floor	lawn	busy	kerosene tank	kerosene
P-071-98	furnace moved to 1st floor	lawn	busy	kerosene tank	kerosene
P-071-98	furnace moved to 1st floor	lawn	busy	kerosene tank	kerosene
P-094-98	painted 1st fl bdrm August	lawn	quiet	industrial park (0.2 mi), gas stations (0.5mi)	oil
P-094-98	painted 1st fl bdrm August	lawn	quiet	industrial park (0.2 mi), gas stations (0.5mi)	oil
P-094-98	painted 1st fl bdrm August	lawn	quiet	industrial park (0.2 mi), gas stations (0.5mi)	oil
P-094-98	painted 1st fl bdrm August	lawn	quiet	industrial park (0.2 mi), gas stations (0.5mi)	oil
P-094-98	painted 1st fl bdrm August	lawn	quiet	industrial park (0.2 mi), gas stations (0.5mi)	oil
P-094-98	no	lawn	quiet	industrial park (0.2 mi), gas stations (0.5mi)	oil
P-094-98	no	lawn	quiet	industrial park (0.2 mi), gas stations (0.5mi)	oil
P-094-98	no	lawn	quiet	industrial park (0.2 mi), gas stations (0.5mi)	oil
	no	lawn	quiet	industrial park (0.2 mi), gas stations (0.5mi)	oil
P-094-98	no	lawn	quiet	industrial park (0.2 mi), gas stations (0.5mi)	oil
P-094-98	no	lawn	quiet	industrial park (0.2 mi), gas stations (0.5mi)	oil

Maine DEP Spill #	Furnace Type	Any Secondary Heating Source(s) Present?	Gas Stove	Air Cleaners	Air Conditioning	Smoking (average # of cigarettes per day)	Meteorologic Data
P-071-98	central warm air	no	no	no	no	no	35 F, steady rain 2/18-19/98
P-071-98	central warm air	no	no	no	no	no	35 F, steady rain 2/18-19/98
P-071-98	central warm air	no	no	no	no	no	35 F, overcast, snow expected then chg. to rain
P-071-98	central warm air	no	no	no	no	no	35 F, overcast, snow expected then chg. to rain
P-071-98	central warm air	no	no	no	no	no	35 F, overcast, snow expected then chg. to rain
P-071-98	central warm air	no	no	no	no	no	35 F, overcast, snow expected then chg. to rain
P-071-98							
P-071-98	central warm air	no	no	no	no	no	75 F, clear, low humidity, some breeze
P-071-98	central warm air	no	no	no	no	no	75 F, clear, low humidity, some breeze
P-071-98	central warm air	no	no	no	no	no	75 F, clear, low humidity, some breeze
P-071-98	central warm air	no	no	no	no	no	75 F, clear, low humidity, some breeze
P-094-98	central warm air	wood stove/elec heat up-don't use	no	no	no	Christmas guests	wind W-3mph, 94 % humidity, overcast
P-094-98	central warm air	wood stove/elec heat up-don't use	no	no	no	Christmas guests	wind W-3mph, 94 % humidity, overcast
P-094-98	central warm air	wood stove/elec heat up-don't use	no	no	no	Christmas guests	wind W-3mph, 94 % humidity, overcast
P-094-98	central warm air	wood stove/elec heat up-don't use	no	no	no	Christmas guests	wind W-3mph, 94 % humidity, overcast
P-094-98	central warm air	wood stove/elec heat up-don't use	no	no	no	Christmas guests	wind W-3mph, 94 % humidity, overcast
P-094-98	central warm air	wood stove/elec heat up-don't use	no	no	no	no	60 F, 35 F overnight, partly cloudy
P-094-98	central warm air	wood stove/elec heat up-don't use	no	no	no	no	60 F, 35 F overnight, partly cloudy
P-094-98	central warm air	wood stove/elec heat up-don't use	no	no	no	no	60 F, 35 F overnight, partly cloudy
	central warm air	wood stove/elec heat up-don't use	no	no	no	no	60 F, 35 F overnight, partly cloudy
P-094-98	central warm air	wood stove/elec heat up-don't use	no	no	no	no	60 F, 35 F overnight, partly cloudy
P-094-98	central warm air	wood stove/elec heat up-don't use	no	no	no	no	60 F, 35 F overnight, partly cloudy

Maine DEP Spill #	Activities during sampling	Sample Location	DEP Staff Conducting Sampling	DEP Sample #
P-071-98	heat, pre-any remediation, 32 in. water in cellar	Basement (bulk stairs)	P. Eremita	#2/418
P-071-98	heat, pre-any remediation, 32 in. water in cellar	Outside	P. Eremita	#3/399
P-071-98	heat, post-extensive remediation (early March)-product vactored, soil excavated, surfaces cleaned	Kitchen	P. Eremita	526
P-071-98	heat, post-extensive remediation (early March)-product vactored, soil excavated, surfaces cleaned	Basement (bulk stairs?)	P. Eremita	198
P-071-98	heat, post-extensive remediation (early March)-product vactored, soil excavated, surfaces cleaned	Living Room	P. Eremita	58
P-071-98	heat, post-extensive remediation (early March)-product vactored, soil excavated, surfaces cleaned			
P-071-98		Living Room Average		
P-071-98	no heat, basement bulkhead / windows and upstairs door / windows open for daytime (17 hrs)	Kitchen	P. Eremita	288
P-071-98	no heat, basement bulkhead / windows and upstairs door / windows open for daytime (17 hrs)	Basement (bulk stairs?)	P. Eremita	444
P-071-98	no heat, basement bulkhead / windows and upstairs door / windows open for daytime (17 hrs)	T.V. Room	P. Eremita	448
P-071-98	no heat, basement bulkhead / windows and upstairs door / windows open for daytime (17 hrs)	T.V. Room	P. Eremita	
P-094-98	heat, chimmney cleaned prior, 2 cold air returns 1st fl, draws from bsmt, tight house w/poor air exchange	Living Area	P. Eremita	521
P-094-98	heat, chimmney cleaned prior, 2 cold air returns 1st fl, draws from bsmt, tight house w/poor air exchange			
		Living Area Average		
P-094-98	heat, chimmney cleaned prior, 2 cold air returns 1st fl, draws from bsmt, tight house w/poor air exchange	Matt's Rm. (by air duct)	P. Eremita	342
P-094-98	heat, chimmney cleaned prior, 2 cold air returns 1st fl, draws from bsmt, tight house w/poor air exchange			
		Matt's Rm. Average		
P-094-98	heat, chimmney cleaned prior, 2 cold air returns 1st fl, draws from bsmt, tight house w/poor air exchange	Basement (sump)	P. Eremita	403
P-094-98	heat overnight, finished laundry prior, water shut off 10 am to 6 pm, replaced oily sump pads prior	Living Area	P. Ermita	320
P-094-98	heat overnight, finished laundry prior, water shut off 10 am to 6 pm, replaced oily sump pads prior	Matt's Room	P. Ermita	479
P-094-98	heat overnight, finished laundry prior, water shut off 10 am to 6 pm, replaced oily sump pads prior	Matt's Room		
	heat overnight, finished laundry prior, water shut off 10 am to 6 pm, replaced oily sump pads prior			
P-094-98	heat overnight, finished laundry prior, water shut off 10 am to 6 pm, replaced oily sump pads prior	Basement	P. Ermita	382
P-094-98	heat overnight, finished laundry prior, water shut off 10 am to 6 pm, replaced oily sump pads prior	Basement		

Trial Period Study Database

Maine Department of Environmental Protection

Maine DEP Spill #	Lab Sample #	Sample Collection Date	Sample Type	Analytical Method	tert Butyl Methyl Ether				Hexane			
					result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb
P-071-98	P9800310-2	19-Feb-98	Summa 24 hour	TO-14 & TPH	0.0	20.0	0.0	5.5	48.0	20.0	14.0	5.7
P-071-98	P9800310-3	19-Feb-98	Summa 24 hour	TO-14 & TPH	2.3	1.0	0.7	0.3	1.8	1.0	0.5	0.3
P-071-98	P9800480-1	18-Mar-98	Summa 24 hour	TO-14 & TPH	1.2	1.0	0.3	0.3	0.0	1.0	0.0	0.3
P-071-98	P9800480-2	18-Mar-98	Summa 24 hour	TO-14 & TPH	24.0	1.0	6.7	0.3	63.0	1.0	18.0	0.3
P-071-98	P9800480-3	18-Mar-98	Summa 24 hour	TO-14 & TPH	1.6	1.0	0.5	0.3	0.9	TR-1	0.3	TR-0.28
P-071-98	P9800480-3 Dup				1.8	1.0	0.5	0.3	0.9	TR-1	0.3	TR-0.28
P-071-98				Average	1.7	1.0	0.5	0.3	0.9		0.3	
P-071-98	P9800902-1	19-May-98	Summa 24 hour	TO-14 & TPH	3.3	2.0	0.9	0.6	0.0	2.0	0.0	0.6
P-071-98	P9800902-2	19-May-98	Summa 24 hour	TO-14 & TPH	3.3	2.0	0.9	0.6	0.0	2.0	0.0	0.6
P-071-98	P9800902-3	19-May-98	Summa 24 hour	TO-14 & TPH	3.1	2.0	0.9	0.6	0.0	2.0	0.0	0.6
P-071-98	P9800902-3 Dup	19-May-98	Summa 24 hour	TO-14 & TPH	3.0	2.0	0.8	0.6	0.0	2.0	0.0	0.6
				Average	3.1	2.0	0.9	0.6	0.0	2.0	0.0	0.6
P-094-98	P9800375-1	3-Mar-98	Summa 24 hour	TO-14 & TPH	2.9	1.0	0.8	0.3	28.0	1.0	8.1	0.3
P-094-98	P9800375-1 Dup				na	na	na	na	na	na	na	na
				Average TPH								
P-094-98	P9800375-2	3-Mar-98	Summa 24 hour	TO-14 & TPH	2.6	1.0	0.7	0.3	26.0	1.0	7.5	0.3
P-094-98	P9800375-2 Dup				2.7	1.0	0.7	0.3	26.0	1.0	7.3	0.3
				Average	2.7	1.0	0.7	0.3	26.0	1.0	7.4	0.3
P-094-98	P9800375-3	3-Mar-98	Summa 24 hour	TO-14 & TPH	4.2	1.0	1.2	0.3	52.0	1.0	15.0	0.3
P-094-98	P9800763-1	28-Apr-98	Summa 24 hr	TO-14 & TPH	3.4	2.0	1.0	0.6	3.3	2.0	0.9	0.6
P-094-98	P9800763-2	28-Apr-98	Summa 24 hr	TO-14 & TPH	2.8	2.0	0.8	0.6	3.1	2.0	0.9	0.6
P-094-98	P9800763-2 Dup	28-Apr-98	Summa 24 hr	TO-14 & TPH	2.7	2.0	0.8	0.6	3.2	2.0	0.9	0.6
		28-Apr-98		Average	2.8	2.0	0.8	0.6	3.2	2.0	0.9	0.6
P-094-98	P9800763-3	28-Apr-98	Summa 24 hr	TO-14 & TPH	16.0	2.0	4.5	0.6	10.0	2.0	2.9	0.6
P-094-98	P9800763-3 Dup	28-Apr-98	Summa 24 hr	TO-14 & TPH	na	na	na	na	na	na	na	na
				Average	16.0	2.0	4.5	0.6	10.0	2.0	2.9	0.6

Maine DEP Spill #	Benzene				Toluene				Ethyl Benzene				m & p - Xylenes	
	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.
P-071-98	23.0	20.0	7.3	6.3	180.0	20.0	49.0	5.3	700.0	20.0	160	4.6	2500.0	20.0
P-071-98	2.0	1.0	0.6	0.3	8.2	1.0	2.2	0.3	1.2	1.0	0.3	0.2	4.1	1.0
P-071-98	1.0	1.0	0.3	0.3	7.4	1.0	2.0	0.3	3.5	1.0	0.8	0.2	11.0	1.0
P-071-98	6.8	1.0	2.1	0.3	86.0	1.0	23.0	0.3	6.2	1.0	1.4	0.2	21.0	1.0
P-071-98	1.4	1.0	0.4	0.3	8.5	1.0	2.2	0.3	4.0	1.0	0.9	0.2	13.0	1.0
P-071-98	1.4	1.0	0.4	0.3	8.6	1.0	2.3	0.3	3.9	1.0	0.9	0.2	13.0	1.0
P-071-98	1.4	1.0	0.4	0.3	8.6	1.0	2.3	0.3	4.0	1.0	0.9	0.2	13.0	1.0
P-071-98	0.0	2.0	0.0	0.6	9.8	2.0	2.6	0.5	0.0	2.0	0.0	0.5	3.6	2.0
P-071-98	0.0	2.0	0.0	0.6	5.0	2.0	1.3	0.5	0.0	2.0	0.0	0.5	2.1	2.0
P-071-98	0.0	2.0	0.0	0.6	10.0	2.0	2.7	0.5	1.5	2.0-TR	0.3	0.46-TR	4.4	2.0
P-071-98	0.0	2.0	0.0	0.6	9.8	2.0	2.6	0.5	1.4	2.0-TR	0.3	0.46-TR	4.3	2.0
	0.0	2.0	0.0	0.6	9.9	2.0	2.7	0.5	1.5		0.3		4.4	2.0
P-094-98	6.6	1.0	2.1	0.3	37.0	1.0	9.7	0.3	11.0	1.0	2.5	0.2	34.0	1.0
P-094-98	na	na	na	na	na	na	na	na	na	na	na	na	na	na
P-094-98	6.1	1.0	1.9	0.3	36.0	1.0	9.5	0.3	9.9	1.0	2.3	0.2	33.0	1.0
P-094-98	6.1	1.0	1.9	0.3	35.0	1.0	9.4	0.3	9.8	1.0	2.3	0.2	33.0	1.0
	6.1	1.0	1.9	0.3	35.5	1.0	9.5	0.3	9.9	1.0	2.3	0.2	33.0	1.0
P-094-98	11.0	1.0	3.4	0.3	53.0	1.0	14.0	0.3	19.0	1.0	4.3	0.2	60.0	1.0
P-094-98	0.0	2.0	0.0	0.6	15.0	2.0	4.0	0.5	2.0	2.0	0.5	0.5	6.4	2.0
P-094-98	0.0	2.0	0.0	0.6	14.0	2.0	3.6	0.5	0.0	2.0	0.0	0.5	4.4	2.0
P-094-98	0.0	2.0	0.0	0.6	14.0	2.0	3.6	0.5	0.0	2.0	0.0	0.5	4.4	2.0
	0.0	2.0	0.0	0.6	14.0	2.0	3.6	0.5	0.0	2.0	0.0	0.5	4.4	2.0
P-094-98	3.6	2.0	1.1	0.6	40.0	2.0	11.0	0.5	9.1	2.0	2.1	0.5	33.0	2.0
P-094-98	na	na	na	na	na	na	na	na	na	na	na	na	na	na
	3.6	2.0	1.1	0.6	40.0	2.0	11.0	0.5	9.1	2.0	2.1	0.5	33.0	2.0

Maine DEP Spill #			o - Xylene				Total Xylenes				Nonane			
	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb
P-071-98	570.0	4.6	1500.0	20.0	360.0	4.6	4000.0	20.0	930	4.6	6900.0	20.0	1300	3.8
P-071-98	1.0	0.2	1.9	1.0	0.5	0.2	6.0	1.0	1.4	0.2	8.2	1.0	1.6	0.2
							0.0		0.0					
P-071-98	2.7	0.2	5.0	1.0	1.1	0.2	16.0	1.0	3.8	0.2	22.0	1.0	4.3	0.2
P-071-98	4.9	0.2	7.4	1.0	1.7	0.2	28.4	1.0	6.6	0.2	5.9	1.0	1.1	0.2
P-071-98	3.0	0.2	5.9	1.0	1.4	0.2	18.9	1.0	4.4	0.2	21.0	1.0	3.9	0.2
P-071-98	2.9	0.2	5.8	1.0	1.3	0.2	18.8	1.0	4.2	0.2	21.0	1.0	4.0	0.2
P-071-98	3.0	0.2	5.9	1.0	1.4	0.2	18.9	1.0	4.3	0.2	21.0	1.0	4.0	0.2
P-071-98	0.8	0.5	1.7	2.0-TR	0.4	0.46-TR	5.3	2.0	1.2	0.5	3.5	2.0	0.7	0.4
P-071-98	0.5	0.5	0.0	2.0	0.0	0.5	2.1	2.0	0.5	0.5	2.8	2.0	0.5	0.4
P-071-98	1.0	0.5	2.1	2.0	0.5	0.5	6.5	2.0	1.5	0.5	4.4	2.0	0.9	0.4
P-071-98	1.0	0.5	2.0	2.0	0.5	0.5	6.3	2.0	1.5	0.5	4.4	2.0	0.8	0.4
	1.0	0.5	2.1	2.0	0.5	0.5	6.4	2.0	1.5	0.5	4.4	2.0	0.8	0.4
P-094-98	7.9	0.2	14.0	1.0	3.2	0.2	48.0	1.0	11.1	0.2	62.0	1.0	12.0	0.2
P-094-98	na	na	na	na	na	na	0.0	na	0.0	na	na	na	na	na
P-094-98	7.7	0.2	14.0	1.0	3.3	0.2	47.0	1.0	11.0	0.2	48.0	1.0	9.1	0.2
P-094-98	7.5	0.2	14.0	1.0	3.2	0.2	47.0	1.0	10.7	0.2	46.0	1.0	8.9	0.2
	7.6	0.2	14.0	1.0	3.3	0.2	47.0	1.0	10.9	0.2	47.0	1.0	9.0	0.2
P-094-98	14.0	0.2	26.0	1.0	5.9	0.2	86.0	1.0	19.9	0.2	120.0	1.0	23.0	0.2
P-094-98	1.5	0.5	2.6	2.0	0.6	0.5	9.0	2.0	2.1	0.5	10.0	2.0	1.9	0.4
P-094-98	1.0	0.5	2.2	2.0	0.5	0.5	6.6	2.0	1.5	0.5	7.9	2.0	1.5	0.4
P-094-98	1.0	0.5	2.2	2.0	0.5	0.5	6.6	2.0	1.5	0.5	7.9	2.0	1.5	0.4
		0.5	2.2	2.0	0.5	0.5	6.6	2.0	1.5	0.5	7.9	2.0	1.5	0.4
P-094-98	7.7	0.5	13.0	2.0	3.0	0.5	46.0	2.0	10.7	0.5	45.0	2.0	8.7	0.4
P-094-98	na	na	na	na	na	na	na	2.0	na	0.5	na	na	na	na
	7.7	0.5	13.0	2.0	3.0	0.5	46.0	2.0	10.7	0.5	45.0	2.0	8.7	0.4
							0.0		0.0					

Maine DEP Spill #	Naphthalene				TPH as Diesel				TPH as Kerosene				Screening PID Data
	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	
	ug/c.m.	ug/c.m.	ppb	ppb	mg/c.m.	mg/c.m.	ppm	ppm	mg/c.m.	mg/c.m.	ppm	ppm	ppm
P-071-98	340.0	20.0	65.0	3.8	230.0	3.6	25.0	0.4	280.0	3.6	37.0	0.5	
P-071-98	0.0	1.0	0.0	0.2	37.0	3.6	4.0	0.4	40.0	3.6	5.3	0.5	
P-071-98	4.2	1.0	0.8	0.2	na	na	na	na	0.0	3.8	0.0	0.5	4
P-071-98	1.4	1.0	0.3	0.2	na	na	na	na	0.0	3.7	0.0	0.5	4
P-071-98	6.1	1.0	1.2	0.2	na	na	na	na	0.0	3.6	0.0	0.5	
P-071-98	6.4	1.0	1.2	0.2	na	na	na	na	na	na	na	na	
P-071-98	6.3	1.0	1.2	0.2									4
P-071-98	2.6	2.0	0.5	0.4	0.0	3.2	0.0	0.4	na	na	na	na	0
P-071-98	3.3	2.0	0.6	0.4	0.0	3.3	0.0	0.4	na	na	na	na	0
P-071-98	3.5	2.0	0.7	0.4	0.0	3.6	0.0	0.4	na	na	na	na	
P-071-98	3.5	2.0	0.7	0.4	na	na	na	na	na	na	na	na	
	3.5	2.0	0.7	0.4	0.0	3.6	0.0	0.4					
P-094-98	4.8	1.0	0.9	0.2	0.0	3.3	0.0	0.4	na	na	na	na	
P-094-98	na	na	na	na	0.0	3.2	0.0	0.4	na	na	na	na	
					0.0	3.3	0.0	0.4					
P-094-98	2.3	1.0	0.4	0.2	0.0	6.9	0.0	0.8	na	na	na	na	
P-094-98	2.1	1.0	0.4	0.2	na	na	na	na	na	na	na	na	
	2.2	1.0	0.4	0.2									
P-094-98	12.0	1.0	2.3	0.2	0.0	3.4	0.0	0.4	na	na	na	na	1
P-094-98	2.1	2.0	0.4	0.4	0.0	3.3	0.0	0.4	na	na	na	na	
P-094-98	0.0	2.0	0.0	0.4	0.0	6.7	0.0	0.7	na	na	na	na	
P-094-98	0.0	2.0	0.0	0.4	na	na	na	na	na	na	na	na	
	0.0	2.0	0.0	0.4	0.0	6.7	0.0	0.7					0
P-094-98	5.7	2.0	1.1	0.4	0.0	3.2	0.0	0.4	na	na	na	na	
P-094-98	na	na	na	na	0.0	3.2	0.0	0.4	na	na	na	na	
	5.7	2.0	1.1	0.4	0.0	3.2	0.0	0.4					1

Maine DEP Spill #	Quality Control	1,2-Dichloroethane-D4	Toluene-D8	Bromofluorobenzene	% Recovery within Method Limits (70-130)
P-071-98	not diesel	104.0	92.4	92.6	yes
P-071-98	not diesel	112.0	99.3	94.2	yes
P-071-98	Method Blanks - ND	96.9	106.0	94.6	yes
P-071-98		88.7	93.7	118.0	yes
P-071-98		84.4	96.7	123.0	yes
P-071-98		80.9	94.2	123.0	yes
P-071-98					
P-071-98	Method Blanks - ND	113	101	101	yes
P-071-98		114	101	102	yes
P-071-98		113	102	103	yes
P-071-98		114	101	102	yes
P-094-98	Method Blanks - ND	112.0	91.5	99.3	yes
P-094-98					
P-094-98		109.0	90.1	97.3	yes
P-094-98		109.0	89.8	98.4	yes
P-094-98		109.0	89.4	98.5	yes
P-094-98	Method Blanks- ND	117.0	100.0	98.7	
P-094-98		117.0	101.0	99.4	
P-094-98		117.0	101.0	99.4	
P-094-98		115.0	99.7	96.7	
P-094-98					

Maine DEP Spill #	Town	Investigation Start	Date of Spill or Date Spill Discovered	Type of Spill	Location of Spill	Size of Spill (gallons)	Cause of Spill	Areas Impacted
P-087-98	Cumberland F(	02/26/98	9/97 to 2/98	no.2 fuel oil	finished bsmt. room sub-slab	250	slow leak & overfilled tank	basement sub-slab, garage sump, perimeter drain
P-087-98	Cumberland F(	02/26/98	9/97 to 2/98	no.2 fuel oil	finished bsmt. room sub-slab	250	slow leak & overfilled tank	basement sub-slab, garage sump, perimeter drain
						250		
P-087-98	Cumberland F(	02/26/98	9/97 to 2/98	no.2 fuel oil	finished bsmt. room sub-slab	250	slow leak & overfilled tank	basement sub-slab, garage sump, perimeter drain
P-087-98	Cumberland F(	02/26/98	9/97 to 2/98	no.2 fuel oil	finished bsmt. room sub-slab	250	slow leak & overfilled tank	basement sub-slab, garage sump, perimeter drain
P-087-98	Cumberland F(	02/26/98	9/97 to 2/98	no.2 fuel oil	finished bsmt. room sub-slab	250	slow leak & overfilled tank	basement sub-slab, garage sump, perimeter drain
P-087-98	Cumberland F(	02/26/98	9/97 to 2/98	no.2 fuel oil	finished bsmt. room sub-slab	250	slow leak & overfilled tank	basement sub-slab, garage sump, perimeter drain
P-087-98	Cumberland F(	02/26/98	9/97 to 2/98	no.2 fuel oil	finished bsmt. room sub-slab	250	slow leak & overfilled tank	basement sub-slab, garage sump, perimeter drain
P-087-98	Cumberland F(	02/26/98	9/97 to 2/98	no.2 fuel oil	finished bsmt. room sub-slab	250	slow leak & overfilled tank	basement sub-slab, garage sump, perimeter drain
P-087-98	Cumberland F(	02/26/98	9/97 to 2/98	no.2 fuel oil	finished bsmt. room sub-slab	250	slow leak & overfilled tank	basement sub-slab, garage sump, perimeter drain
P-087-98	Cumberland F(	02/26/98	9/97 to 2/98	no.2 fuel oil	finished bsmt. room sub-slab	250	slow leak & overfilled tank	basement sub-slab, garage sump, perimeter drain
P-087-98	Cumberland Foreside							
B-055-98	Newburgh	01/24/98	1/24/98	no.2 fuel oil	10'x10' tank rm in bsmt.	150-200	metal fatigue-1/8 in. hole	bsmt. concrete floor/wall cracks, sump
B-061-98	S. West Harbo	01/27/98	1/22/98	kerosene	exterior AST along bldg.	300-600	pinhole drip - over a year	exteior tank area, crawl space (w/ rain)

Maine DEP Spill #	Odor Present at Time of Sampling?	Health Effects	Other Indoor Sources	House Type	Attached Garage	Foundation	Year Built
P-087-98	yes - garage / fam. Rm.	yes	paint, gas can (garage)	single, split	yes	basement	1964
P-087-98	yes - garage / fam. Rm.	yes	paint, gas can (garage)	single, split	yes	basement	1964
P-087-98	yes - garage / fam. Rm.	yes	paint, gas can (garage)	single, split	yes	basement	1964
P-087-98	yes - garage / fam. Rm.	yes	paint, gas can (garage)	single, split	yes	basement	1964
P-087-98	no	no	oil tank	single, split	yes	basement	1964
P-087-98	no	no	oil tank	single, split	yes	basement	1964
P-087-98	no	no	oil tank	single, split	yes	basement	1964
P-087-98	no	no	oil tank	single, split	yes	basement	1964
P-087-98	no	no	oil tank	single, split	yes	basement	1964
P-087-98	no	no	oil tank	single, split	yes	basement	1964
P-087-98							
B-055-98	yes - study	yes	paint, sovents, oil tank (bsmt), woodstove (living rm)	single, 2-story	no	basement	1970-1979
B-061-98	yes - very slight	yes	no	1-story (30'X100')	no	crawl space	1939 or earlier

Maine DEP Spill #	Recent Renovations (in last year)	Description of Area Surrounding House	Traffic Level Near House	Potential Outdoor Sources	Heat Source
P-087-98	no	lawn	quiet	drainage system	oil
P-087-98	no	lawn	quiet	drainage system	oil
P-087-98	no	lawn	quiet	drainage system	oil
P-087-98	no	lawn	quiet	drainage system	oil
P-087-98	no	lawn	quiet	drainage system	oil
P-087-98	no	lawn	quiet	drainage system	oil
P-087-98	no	lawn	quiet	drainage system	oil
P-087-98	no	lawn	quiet	drainage system	oil
P-087-98	no	lawn	quiet	drainage system	oil
P-087-98	no	lawn	quiet	drainage system	oil
P-087-98					
B-055-98	no	lawn	dirt road	no	oil / wood
B-061-98	furnace repairs	lawn	moderate	parking lot, gas station, kerosene tank, passive oil recovery well	kerosene

Maine DEP Spill #	Furnace Type	Any Secondary Heating Source(s) Present?	Gas Stove	Air Cleaners	Air Conditioning	Smoking (average # of cigarettes per day)	Meteorologic Data
P-087-98	hot water	wood stove - not used	no	no	no	no	35 F, dry, mostly cloudy to clear (3/5/98)
P-087-98	hot water	wood stove - not used	no	no	no	no	35 F, dry, mostly cloudy to clear (3/5/98)
P-087-98	hot water	wood stove - not used	no	no	no	no	35 F, dry, mostly cloudy to clear (3/5/98)
P-087-98	hot water	wood stove - not used	no	no	no	no	35 F, dry, mostly cloudy to clear (3/5/98)
P-087-98	hot water	wood stove - not used	no	no	no	no	
P-087-98	hot water	wood stove - not used	no	no	no	no	
P-087-98	hot water	wood stove - not used	no	no	no	no	
P-087-98	hot water	wood stove - not used	no	no	no	no	
P-087-98	hot water	wood stove - not used	no	no	no	no	
P-087-98	hot water	wood stove - not used	no	no	no	no	
P-087-98							
B-055-98	steam/hot water	wood stove, fireplace	yes	no	no	no	40 F, sunny, slight breeze
B-061-98	central warm air	no	no	no	no	no	36 F, 1.5 mph W wind, 29.58 b.pressue, sunny

Maine DEP Spill #	Activities during sampling	Sample Location	DEP Staff Conducting Sampling	DEP Sample #
P-087-98	heat, dining/master bdrm windows open, garage open-day, fan removed in fam. rm., sump pumped prior	Entry Area	P. Eremita	533
P-087-98	heat, dining/master bdrm windows open, garage open-day, fan removed in fam. rm., sump pumped prior	Entry Area		
		Entry Area Average		
P-087-98	heat, dining/master bdrm windows open, garage open-day, fan removed in fam. rm., sump pumped prior	Basement	P. Eremita	238
P-087-98	heat, dining/master bdrm windows open, garage open-day, fan removed in fam. rm., sump pumped prior	Living Area (1st fl. Hearth, vent)	P. Eremita	543
P-087-98	heat, master bdrm window open, bsmt window closed, vapor extraction syst. (radon fan) operating (vent sta	Entry Area	P. Eremita	1111
P-087-98	heat, master bdrm window open, bsmt window closed, vapor extraction syst. (radon fan) operating (vent sta	Entry Area		
		Entry Area Average		
P-087-98	heat, master bdrm window open, bsmt window closed, vapor extraction syst. (radon fan) operating (vent sta	Basement	P. Eremita	85
P-087-98	heat, master bdrm window open, bsmt window closed, vapor extraction syst. (radon fan) operating (vent sta	Basement	P. Eremita	181 / Fld. Dup - 85
		Basement Average		Average
P-087-98	heat, master bdrm window open, bsmt window closed, vapor extraction syst. (radon fan) operating (vent sta	Living Area (1st fl. Hearth, vent)	P. Eremita	1101
P-087-98	heat, master bdrm window open, bsmt window closed, vapor extraction syst. (radon fan) operating (vent sta	Living Area (1st fl. Hearth, vent)		
P-087-98		Living Area Average		
B-055-98	heat, antique restor. 100 ft in unattached garage; bsmt fl. epoxy 2/2-3/98, secondary heat 3 days prior	Study (1st fl)	R. Sypitkowski	228
B-061-98	heat, 3 fans in crawl space - no direct air exchange w/ bldg., plastic on soil, excav. soil, pass. oil rec. well	Check- out desk (20'x70') near st.)	P. Winchester	341

Trial Period Study Database

Maine Department of Environmental Protection

Maine DEP Spill #	Lab Sample #	Sample Collection Date	Sample Type	Analytical Method	tert Butyl Methyl Ether				Hexane			
					result	R.L.	result	R.L.	result	R.L.	result	R.L.
					ug/c.m.	ug/c.m.	ppb	ppb	ug/c.m.	ug/c.m.	ppb	ppb
P-087-98	P9800376-1	4-Mar-98	Summa 24 hour	TO-14 & TPH	19.0	1.0	5.4	0.3	12.0	1.0	3.4	0.3
P-087-98	P9800376-1 Dup				na	na	na	na	na	na	na	na
				Average TPH								
P-087-98	P9800376-2	4-Mar-98	Summa 24 hour	TO-14 & TPH	31.0	1.0	8.5	0.3	19.0	1.0	5.3	0.3
P-087-98	P9800376-3	4-Mar-98	Summa 24 hour	TO-14 & TPH	22.0	1.0	6.2	0.3	13.0	1.0	3.6	0.3
P-087-98	P9800761-1	30-Apr-98	Summa 21 hour	TO-14 & TPH	16.0	1.0	4.5	0.3	4.6	1.0	1.3	0.3
P-087-98	P9800761-1 Dup	30-Apr-98		TPH	na	na	na	na	na	na	na	na
				Average TPH								
P-087-98	P9800761-2	30-Apr-98	Summa 21 hour	TO-14 & TPH	18.0	1.0	5.0	0.3	7.0	1.0	2.0	0.3
P-087-98	P9800761-4	30-Apr-98	Summa 21 hour	TO-14 & TPH	18.0	1.0	5.0	0.3	4.8	1.0	1.4	0.3
				Average	18.0	1.0	5.0	0.3	5.9	1.0	1.7	0.3
P-087-98	P9800761-3	30-Apr-98	Summa 21 hour	TO-14 & TPH	8.5	1.0	2.4	0.3	3.0	1.0	0.8	0.3
P-087-98	P9800761-3 Dup	30-Apr-98		TO-14	8.5	1.0	2.4	0.3	3.0	1.0	0.9	0.3
P-087-98				Average	8.5	1.0	2.4	0.3	3.0	1.0	0.8	0.3
B-055-98	P9800260-1	13-Feb-98	Summa 4 hour	TO-14	0.0	1.0	0.0	0.3	1.7	1.0	0.5	0.3
B-061-98	P9800260-2	13-Feb-98	Summa 4 hour	TO-14	0.0	1.0	0.0	0.3	1.0	1.0	0.3	0.3

Maine DEP Spill #	Benzene				Toluene				Ethyl Benzene				m & p - Xylenes	
	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.	result ppb	R.L. ppb	result ug/c.m.	R.L. ug/c.m.
P-087-98	7.0	1.0	2.2	0.3	47.0	1.0	12.0	0.3	27.0	1.0	6.2	0.2	88.0	1.0
P-087-98	na	na	na	na	na	na	na	na	na	na	na	na	na	na
P-087-98	10.0	1.0	3.2	0.3	71.0	1.0	19.0	0.3	43.0	1.0	9.9	0.2	130.0	1.0
P-087-98	7.4	1.0	2.3	0.3	50.0	1.0	13.0	0.3	28.0	1.0	6.4	0.2	87.0	1.0
P-087-98	4.4	1.0	1.4	0.3	23.0	1.0	6.0	0.3	4.1	1.0	1.0	0.2	15.0	1.0
P-087-98	na	na	na	na	na	na	na	na	na	na	na	na	na	na
P-087-98	4.9	1.0	1.5	0.3	30.0	1.0	7.9	0.3	4.3	1.0	1.0	0.2	15.0	1.0
P-087-98	7.4	1.0	2.3	0.3	25.0	1.0	6.7	0.3	4.0	1.0	0.9	0.2	13.0	1.0
	6.2	1.0	1.9	0.3	27.5	1.0	7.3	0.3	4.2	1.0	0.9	0.2	14.0	1.0
P-087-98	2.7	1.0	0.9	0.3	15.0	1.0	4.1	0.3	2.0	1.0	0.5	0.2	6.5	1.0
P-087-98	2.7	1.0	0.8	0.3	15.0	1.0	4.1	0.3	2.0	1.0	0.5	0.2	6.5	1.0
P-087-98	2.7	1.0	0.9	0.3	15.0	1.0	4.1	0.3	2.0	1.0	0.5	0.2	6.5	1.0
B-055-98	6.8	1.0	2.1	0.3	11.0	1.0	2.9	0.3	13.0	1.0	3.0	0.2	41.0	1.0
B-061-98	1.6	1.0	0.5	0.3	9.9	1.0	2.6	0.3	2.6	1.0	0.6	0.2	12.0	1.0

Maine DEP Spill #			o - Xylene				Total Xylenes				Nonane			
	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.
	ppb	ppb	ug/c.m.	ug/c.m.	ppb	ppb	ug/c.m.	ug/c.m.	ppb	ppb	ug/c.m.	ug/c.m.	ppb	ppb
P-087-98	20.0	0.2	39.0	1.0	9.1	0.2	127.0	1.0	29.1	0.2	120.0	1.0	24.0	0.2
P-087-98	na	na	na	na	na	na	0.0	na	0.0	na	na	na	na	na
P-087-98	30.0	0.2	62.0	1.0	14.0	0.2	192.0	1.0	44.0	0.2	220.0	1.0	42.0	0.2
P-087-98	20.0	0.2	39.0	1.0	9.0	0.2	126.0	1.0	29.0	0.2	130.0	1.0	24.0	0.2
P-087-98	3.5	0.2	5.1	1.0	1.2	0.2	20.1	1.0	4.7	0.2	4.3	1.0	0.8	0.2
P-087-98	na	na	na	na	na	na	na	na	na	na	na	na	na	na
P-087-98	3.4	0.2	5.4	1.0	1.2	0.2	20.4	1.0	4.6	0.2	5.3	1.0	1.0	0.2
P-087-98	2.9	0.2	4.5	1.0	1.0	0.2	17.5	1.0	3.9	0.2	5.3	1.0	1.0	0.2
	3.2	0.2	5.0	1.0	1.1	0.2	19.0	1.0	4.3	0.2	5.3	1.0	1.0	0.2
P-087-98	1.5	0.2	2.3	1.0	0.5	0.2	8.8	1.0	2.0	0.2	2.6	1.0	0.5	0.2
P-087-98	1.5	0.2	2.3	1.0	0.5	0.2	8.8	1.0	2.0	0.2	2.6	1.0	0.5	0.2
P-087-98	1.5	0.2	2.3	1.0	0.5	0.2	8.8	1.0	2.0	0.2	2.6	1.0	0.5	0.2
							0.0		0.0					
B-055-98	9.4	0.2	12.0	1.0	2.8	0.2	53.0	1.0	12.2	0.2	7.1	1.0	1.3	0.2
							0.0		0.0					
B-061-98	2.8	0.2	5.4	1.0	1.2	0.2	17.4	1.0	4.0	0.2	20.0	1.0	3.9	0.2

Maine DEP Spill #	Naphthalene				TPH as Diesel				TPH as Kerosene				Screening PID Data
	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	result	R.L.	
	ug/c.m.	ug/c.m.	ppb	ppb	mg/c.m.	mg/c.m.	ppm	ppm	mg/c.m.	mg/c.m.	ppm	ppm	ppm
P-087-98	9.2	1.0	1.8	0.2	0.0	3.3	0.0	0.4	na	na	na	na	
P-087-98	na	na	na	na	0.0	3.2	0.0	0.4	na	na	na	na	
					0.0	3.3	0.0	0.4					
P-087-98	17.0	1.0	3.2	0.2	4.8	3.2	0.5	0.4	na	na	na	na	1.99
P-087-98	11.0	1.0	2.2	0.2	0.0	3.2	0.0	0.4	na	na	na	na	0.99
P-087-98	5.3	1.0	1.0	0.2	0.0	3.3	0.0	0.4	na	na	na	na	0
P-087-98	na	na	na	na	0.0	3.3	0.0	0.4	na	na	na	na	
					0.0	3.3	0.0	0.4					
P-087-98	1.8	1.0	0.3	0.2	0.0	6.5	0.0	0.7	na	na	na	na	
P-087-98	3.9	1.0	0.8	0.2	0.0	6.3	0.0	0.7	na	na	na	na	
	2.9	1.0	0.5	0.2	0.0	6.4	0.0	0.7					2
P-087-98	4.2	1.0	0.8	0.2	0.0	3.2	0.0	0.4	na	na	na	na	
P-087-98	4.1	1.0	0.8	0.2	na	na	na	na	na	na	na	na	
P-087-98	4.2	1.0	0.8	0.2									0
B-055-98	12.0	1.0	2.2	0.2	na	na	na	na	na	na	na	na	na
B-061-98	3.3	1.0	0.6	0.2	na	na	na	na	na	na	na	na	0

Trial Period Study Database

Maine Department of Environmental Protection

Maine DEP Spill #	Quality Control	1,2-Dichloroethane-D4	Toluene-D8	Bromofluorobenzene	% Recovery within Method Limits (70-130)
P-087-98	Method Blanks - ND	107.0	84.3	94.1	yes
P-087-98					
P-087-98	not diesel	108.0	85.2	92.6	yes
P-087-98		107.0	88.6	97.3	yes
P-087-98	Method Blanks - ND	107	99.2	100	
P-087-98					
P-087-98		107	98.9	101	
P-087-98		106	99.9	102	
P-087-98		108	100	102	
P-087-98		107	100	103	
P-087-98					
B-055-98					
B-061-98					

NOTES:

1. Lab sample #'s that begin with a "P" were analyzed by Precision Analytics
2. Lab sample #'s that begin with a "@" were analyzed by Air Toxics
3. NA - Not analyzed
4. ND - Not detected
5. TR - Trace concentration detected below reporting limit
6. TIC - Tentitively Identified Compound (followd by the match quality percent)
7. * - Resembles early portion of diesel pattern